

Draft Report

**April 2001 Sampling Investigation
Concrete Expansion Joint Material
North Boeing Field
Seattle, Washington**

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Prepared for

The Boeing Company

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1.0 INTRODUCTION

This report documents the most recent results of an ongoing investigation of concrete expansion joint material at North Boeing Field (NBF), in Seattle, Washington (Figure 1). Thirty-nine samples of five types of concrete expansion joint material were collected and analyzed for polychlorinated biphenyls (PCBs) in April 2001. The purpose of this sampling was to better evaluate the variability of PCB concentrations in three types of concrete joint material present at NBF. Previous investigations had indicated that these three types of joint material contained PCBs at concentrations ranging from nondetect to 50,000 mg/kg. In addition to better characterizing these three types of material, two additional types of concrete joint material that had not been previously evaluated were sampled and analyzed for PCBs.

A brief summary of concrete joint material investigations that preceded the April 2001 investigation is provided in the following sections, as well as a summary of the April 2001 investigation. This report concludes with a summary of the description, characterization, location, and PCB concentrations of each type of joint material at NBF, based on the combined results from the investigations.

2.0 PREVIOUS INVESTIGATIONS

Previous investigations of the concrete expansion joint material for PCBs at NBF consisted of a visual inspection of the joint materials, sampling and analysis of the materials identified in the visual inspection, and mapping the location of selected types of joint material. This section provides a brief description of these investigations.

2.1 VISUAL INSPECTION

In October 2000, Boeing and D&G Mechanical personnel conducted a visual inspection of the concrete expansion joints at NBF. The purpose of the inspection was to identify the types of joint material present in the concrete joints. Ten joint material types were identified. The joint material types were distinguished based on observed physical properties. The joint material types were given alphabetical designations, A through J.

2.2 INITIAL JOINT MATERIAL SAMPLING (NOVEMBER 2000)

During November 2000, Boeing and D&G Mechanical collected samples of each of the ten types of joint material identified during the visual inspection. A total of 48 joint material samples were collected and analyzed for PCBs using U.S. Environmental Protection Agency (EPA) method 8082. The samples were analyzed by Analytical Resources, Inc. (ARI) located in Seattle, Washington. Of the 48 samples collected, one sample of Type A joint material contained 23,000 mg/kg total PCBs. Two samples of Type G joint material contained 35,300 and 50,000 mg/kg total PCBs, respectively. One sample of Type H joint material contained 164 mg/kg total PCBs. All of the other joint material samples had total PCB concentrations below 50 mg/kg. Sample collection procedures and analytical results for all ten joint material types identified at NBF are provided in the *Sampling and Analysis Report, Concrete Joint Material, North Boeing Field, Seattle, Washington* (Landau Associates 2001a). A summary of the results is also included in the data tables in this report.

2.3 FIELD MAPPING

Based on the analytical results from the November joint material sampling, Boeing and Landau Associates' personnel conducted a more focused investigation of the joint material at NBF during February 2001. This investigation included the following tasks:

- Characterization and field mapping of joint material Types A, E, G, and H, by determining and documenting their location, linear extent, condition and, if appropriate, defining joint

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material subtypes. This investigation not only identified joints that contained these types of material as the primary material, but also identified joints where remnants of these types of joint material were present (i.e., the joint material had been replaced, but still remained along the edges of a joint filled with new material). These remnants are referred to as "residual" joint material.

- Examination of the area near each previous joint material sample location with a total PCB concentration greater than 50 mg/kg for evidence of possible spills, such as staining. The area examined included a 100-ft radius around each catch basin unless a boundary, such as an obvious slope or grade change, suggested a smaller area was appropriate. No evidence of spills was observed.
- Identification of the joint material types located within a 100-ft radius of each catch basin or manhole that historically contained solid material with total PCB concentrations of 10 mg/kg or greater.
- Identification of additional types of joint material not previously identified, joint material Type K and Subtype C2.

The results of this investigation are documented in the *Concrete Expansion Joint Material Field Mapping Report, North Boeing Field, Seattle, Washington* (Landau Associates 2001b).

3.0 ADDITIONAL JOINT MATERIAL INVESTIGATION

This section describes the activities that were performed for the additional joint material sampling event that occurred in April 2001. This sampling event followed the field mapping of Types A, E, G, and H joint material.

3.1 JOINT MATERIAL SAMPLE COLLECTION

A total of 39 joint material samples (including blind field duplicates) were collected during this investigation. Consistent with the November 2000 joint material sampling event, each sample was given a unique sample identification number (e.g., NBF-SP58-010402-G). "NBF" represents North Boeing Field. "SP-58" indicates the 58th sample collected during both sampling events. "010402" is a date reference: yy/mm/dd. "G" indicates primary joint material type. During this investigation, residual joint material was indicated by "Res." prefacing the material type (i.e., "Res. G"). Samples were collected in accordance with the procedures described in the *Sampling and Analysis Plan, Concrete Joint Material, North Boeing Field, Seattle, Washington* (SAP) (Landau Associates 2000).

Following the sample collection, each sample location was marked with spray paint and labeled with the sample identification number. A Global Positioning System (GPS) unit was used to determine the x, y (northing and easting) coordinates for each of the sample locations.

3.2 LABORATORY ANALYSES AND DATA QUALITY EVALUATION

The April 2001 concrete joint material samples were analyzed for PCBs using EPA method 8082. To eliminate potential chromatographic interferences, sulfuric acid and elemental mercury cleanup procedures were performed on the sample extracts prior to analysis. All of the cleanup procedures and analyses were performed by ARI.

Following receipt of the analytical results, the quality of the data was evaluated by Landau Associates in accordance with the procedures and requirements specified in Section 3.0 of the SAP (Landau Associates 2000). According to the evaluation, the detected aroclor concentrations for sample NBF-SP78-010404-G and the blind field duplicate sample NBF-SP79-010404-G were qualified as estimates (J) due to the relative percent difference between these concentrations. Otherwise, no data were rejected and the data were determined acceptable for use as qualified. Laboratory data sheets are provided in Appendix A.

4.0 SUMMARY OF JOINT MATERIAL TYPES AND ANALYTICAL RESULTS

This section summarizes the physical characteristics, the location, and the range of PCB concentrations for each type of concrete expansion joint material identified at NBF. This summary is based on analytical results obtained from all the concrete expansion joint investigations conducted to date at NBF. A detailed description of each type of joint material, including the number of samples collected and the range of total PCB concentrations detected in each type of joint material, is provided in Table 1. A tabulated summary of individual aroclor concentrations and total PCB concentrations is presented in Tables 2 and 3, respectively. Sample identifications used on this table are a portion of the sample identification number and include the sample Type designation (e.g., "A") and sample sequence (e.g., "SP14"). Total PCB concentrations for each type of concrete joint material are mapped by sampling location on Figures 2 through 8.

4.1 TYPE A

Type A joint material is described as a dull, black material with the consistency of a pencil eraser. It usually exhibits a puffed-up appearance. Type A was found as the primary joint filler at three areas at NBF: in the northern portion of NBF in front of buildings 3-369 and 3-380, in the southern portion of NBF near the northwest corner of building 3-840, and in the central portion of NBF near stall B-5. Only small amounts of this material were observed at each location. No residual Type A material was found.

A total of eight Type A joint material samples were collected during the November 2000 and April 2001 sampling events. A ninth sample, NBF-SP38-001109-A, was originally identified as Type A; however, after further observation and characterization during the February 2001 field mapping, it was reclassified as Type F material and the sample identification number was revised to NBF-SP38-001109-F.

The total PCB concentrations detected in the eight Type A samples ranged from nondetect to 79,000 mg/kg. Three of the eight samples had total PCB concentrations of 23,000 mg/kg or greater. All three of these samples were located north of the 3-369 paint hangar, near the northwest corner of the 3-390 building. Total PCB concentrations in the remaining five Type A samples were less than 50 mg/kg. Due to the broad range of total PCB concentrations detected in the Type A material, some basic statistical parameters were calculated for the Type A data set. These parameters include the mean of the detected concentrations, the standard deviation of the detected concentrations, and the upper 95 percent confidence limit (UCL) on the mean. The statistical parameters are presented in Table 4. Sample locations and corresponding total PCB concentrations are shown on Figure 2.

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4.2 TYPES B, B1, AND B2

Type B is a dark brown to black material with the consistency of a soft earplug. It is found as the primary material filling joints associated with new concrete and comprises the majority of the concrete joints at NBF. Type B was subdivided into Types B, B1, and B2 based on installation date of the joint material (see Table 1). A total of five Type B samples, four Type B1 samples, and three Type B2 samples were collected in November 2000. These joint material types were not sampled in April 2001. The sample locations for Types B, B1, and B2 are shown on Figure 3.

All samples of this type of joint material, regardless of the date of installation, contained total PCB concentrations of less than 50 mg/kg. Total PCB concentrations ranged from nondetect to 4.3 mg/kg with the exception of one Type B sample, which contained a total PCB concentration of 41.9 mg/kg. Sample locations and corresponding total PCB concentrations are shown on Figure 3. Further discussion of the characterization of each subtype is provided in the *Concrete Joint Material Sampling and Analysis Report* (Landau Associates 2001a).

4.3 TYPES C, C1, AND C2

Type C is a medium gray material typically associated with newer patches of concrete. Two Subtypes (C1 and C2) were identified based on slight color variations. Type C1 is dark gray and Type C2 is a gray-white; however, both types have other physical characteristics that are similar to Type C. Type C is found along the northern property boundary, near the wash stall, in the northeast corner of NBF, and north of Concourse C. Type C1 is found at stall B-13 and Type C2 is found along the utilidor north and west of the 3-390 building.

A total of three Type C and one Type C1 samples were collected in November 2000. A total of three Type C2 samples were collected in April 2001. Each sample location is shown on Figure 4.

The total PCB concentrations for all three types of this joint material ranged from nondetect to 13 mg/kg. Sample locations and corresponding total PCB concentrations are shown on Figure 4. Further discussion of the characterization of each subtype is provided in the *Concrete Joint Material Sampling and Analysis Report* (Landau Associates 2001a).

4.4 TYPES D AND D1

Type D joint material is a dark brown material with the consistency of a fan belt. It is found, in small amounts, as the primary joint material at various locations throughout NBF. A subtype of this material (D1) was identified due to some slight physical variations (Table 1). Type D is found north of

the 3-369 paint hangar and in the parking lot north of stall C-4. Type D1 is found as material filling concrete cracks, near stall A-5. Four samples of Type D and one sample of Type D1 were collected in November 2001.

The PCB concentrations for these two types of joint material ranged from 0.77 to 2.7 mg/kg. The sample locations and corresponding total PCB concentrations are shown on Figure 4.

4.5 TYPE E

Type E is a light gray material with the consistency of bathtub caulk. It is found along the northern property boundary of NBF, the north side of the 3-333 building, and along the wash stall in the southern portion of NBF. Three samples of Type E material (including one blind field duplicate) were collected during the November 2000 sampling event.

The total PCB concentrations for Type E material ranged from 0.53 to 5.2 ppm. Sample locations and corresponding total PCB concentrations are shown on Figure 5.

4.6 TYPE F

Type F is a black, tar-like joint material with a cracked, glassy surface. It is slightly pliable and elastic. Type F material is found as a primary material filling concrete expansion joints located along the northwestern property boundary of NBF, along the utilidor east of Concourse B, and under the blast wall along Concourse B.

Seven Type F samples were collected during the November 2000 sampling event. One of these samples was originally identified as Type A, as discussed in Section 4.1. The total PCB concentrations for the Type F material ranged from nondetect to 3.1 mg/kg. Sample locations and corresponding total PCB concentrations are shown on Figure 5.

4.7 TYPE G

Type G is a pink-tan material with the consistency of dense caulking. It is found as the primary material filling concrete expansion joints and as residual material found along the edges of concrete expansion joints filled with another type of material (generally Type B). Type G is found as the primary joint material mostly along the A concourse. Type G can also be found as residual material along the A concourse and along the B concourse; however, neither primary nor residual Type G is found at any location south of stall B-9 at NBF.

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A total of sixteen Type G joint material samples were collected during the November 2000 and April 2001 sampling events. Nine of the samples (including one blind field duplicate) were collected from areas where Type G was found as the primary material filling the concrete expansion joint and seven of the samples were collected from areas where Type G was found as a residual material. The total PCB concentrations for the nine primary Type G samples ranged from 6.1 to 61,000 mg/kg. All but two samples had PCB concentrations 3,900 mg/kg or greater. The total PCB concentrations for the other two samples were significantly less (i.e., 6.1 and 14.1 mg/kg). Both of these samples were located near the taxiway between the A and B concourses. The total PCB concentrations for the residual Type G material samples ranged from 4,200-57,000 mg/kg. Due to the broad range of total PCB concentrations detected in the Type G material, some basic statistical parameters were calculated for the Type G data set, including data for both primary and residual Type G samples. These parameters included the mean of the detected concentrations, the standard deviation of the detected concentrations, and the UCL. The statistical parameters are presented in Table 4. The sample locations for both the primary and residual Type G material and corresponding total PCB concentrations are shown on Figure 6.

4.8 TYPE H

Type H is a black, tar-like, brittle joint material. It is found as primary joint filling material and as residual joint material throughout NBF. Based on the observations made during the visual inspection and the field mapping investigation, it appears that Type H material may be a continuum of Type F joint material due to similar physical characteristics (e.g. both materials are black and tar-like in appearance). The main difference between the two types is that Type F is slightly pliable and Type H is brittle. It is our conclusion that Type F may represent a less weathered condition and Type H a more heavily weathered condition of the same basic joint material type. This conclusion is based solely on the field observations of physical characteristics of the joint materials.

A total of twenty-two Type H joint material samples were collected during the November 2000 and April 2001 sampling events. Fourteen of these samples (including one blind field duplicate) were collected from areas where Type H is found as the primary material filling the concrete expansion joints and eight of the samples were collected from areas where Type H is found as a residual material. The total PCB concentrations for the fourteen primary Type H samples ranged from nondetect to 270 mg/kg. Only two of the samples contained total PCB concentrations greater than 50 mg/kg. These samples were located in the northeastern corner of NBF, just north of the 3-322 building (Figure 7). Total PCB concentrations for the other twelve primary Type H samples were 25.1 mg/kg or less. The total PCB concentrations for the eight residual Type H samples ranged from 1.8 to 42 mg/kg, with the exception of

one sample located south of stall A-6, which contained a total PCB concentration of 2,240 mg/kg and one sample at stall B-2, which contained a total PCB concentration of 50 mg/kg. Due to the broad range of total PCB concentrations detected in the Type H material, some basic statistical parameters were calculated for the Type H data set, including data for both primary and residual Type H samples. These parameters include the mean of the detected concentrations, the standard deviation of the detected concentrations, and the UCL. The statistical parameters are presented in Table 4. The sample locations for both the primary and residual Type H joint material samples and the corresponding total PCB concentrations are shown on Figure 7.

4.9 TYPE I

Type I is a dull, brown-gray material with the density of a bungee cord. It was found in only two locations at NBF: east of stall A-6 and north of stall A-5. It is the primary joint material filling the concrete expansion joints at these two locations. No residual Type I was found. Two samples were collected during the November 2000 sampling event. Total PCBs were detected in one of the samples at a concentration of 1.2 mg/kg. No PCBs were detected in the second sample. The sample locations and corresponding total PCB concentrations are shown on Figure 8.

4.10 TYPE J

Type J is a two-layer joint material with a dark-gray upper layer and a dull tan underlying layer. It was found as the primary material filling concrete expansion joints only around the oil-water separator in stall A-6. No residual Type J material was found. Two samples of Type J material were collected during the November 2000 sampling event. Total PCBs were detected in one sample at a concentration of 1.1 mg/kg and no PCBs were detected in the second sample. The sample locations and corresponding total PCB concentration for Type J material are shown on Figure 8.

4.11 TYPE K

Type K is a dark-brown, fibrous, wood-like joint material. This material was not identified until the field mapping portion of the joint material investigation. Type K was identified as the primary material filling concrete expansion joints along the 3-333 building, near the 3-386 wind tunnel building, and in the sidewalk concrete expansion joints around the 3-800 and 3-801 buildings. Type K was not found as a residual material. Three samples of Type K were collected during the April 2001 sampling

event. The total PCB concentrations for the Type K samples ranged from nondetect to 0.78 mg/kg. The sample locations and corresponding total PCB concentrations are shown on Figure 8.

5.0 CONCLUSIONS

The joint material investigations conducted to date have identified 11 different types of joint material present in the concrete joints at NBF (Types A through K). A total of 87 samples of these 11 types of joint material were collected and analyzed for PCBs. The results from these samples indicate that three types of joint material (A, G, and H) contain total PCB concentrations greater than 50 mg/kg. One sample each of Types B and C2 joint material contained total PCB concentrations between 10 and 50 mg/kg. Figures 9a through 9f show the locations of joint material types; locations and total PCB concentrations of Types A, B, C2, G, and H material samples; and locations of catch basins with total PCB concentrations greater than 10 mg/kg.

The extent of Type A joint material at NBF is estimated to be about 3,500 linear feet (Landau Associates 2001b). Eight samples of Type A material were collected and analyzed. Approximately 37 percent of the Type A joint material samples had total PCB concentrations ranging from 23,000 to 79,000 mg/kg. These samples were all from an area in front the 3-369 building. The extent of joint material in this area is estimated to be about 1,060 linear ft. The remaining 63 percent of the Type A samples had total PCB concentrations of less than 50 mg/kg.

Types G and H can be found as the primary material filling a concrete joint and as residual material located along the edges of concrete joints filled with another type of material, most often Type B. Type G material is only found in the northern portion of NBF (i.e., north of stall B-9). The extent of concrete expansion joints filled with Type G material is estimated to be approximately 464 linear ft (Landau Associates 2001b). Residual Type G material is estimated to be present along 56,000 linear ft (10.7 miles) of joints; however, the volume or mass of residual material present is difficult to estimate. Sixteen samples of Type G material were collected and analyzed. Approximately 87 percent of the Type G samples had concentrations ranging from 3,900 to 61,000 mg/kg. The remaining 13 percent (two samples, both from the taxiway between Concourse A and B) of the Type G samples had concentrations below 15 mg/kg. Seven of the sixteen Type G material samples were of residual joint material. All of the residual Type G material samples contained total PCB concentrations of 4,200 mg/kg or greater.

Type H material is found throughout NBF. The extent of concrete expansion joints filled with Type H material is estimated to be approximately 64,000 linear ft (12.1 miles) (Landau Associates 2001b). Residual Type H material is estimated to be present along 191,000 linear ft (36.2 miles) of joints; however, the volume or mass of residual material present is difficult to estimate. Twenty-two samples of primary and residual Type H material were collected and analyzed. Approximately 14 percent (two samples) of the primary Type H material samples had concentrations above 50 mg/kg, ranging from 164 to 2,240 mg/kg. The two samples were both from an area just north of the 3-322 building, near a large

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machine. Few other samples of Type H joint material were collected from the area north of the Concourse A blast wall; therefore, it is difficult to evaluate whether the two analyzed samples are representative of all of the Type H material north of the Concourse A blast wall (5,600 linear ft) or only of the area north of the 3-322 building (180 linear ft). The remaining 86 percent of the samples had total PCB concentrations less than 50 mg/kg. Eight of the twenty-two Type H material samples were of residual joint material. Two of the Type H residual material samples had a total PCB concentration equal to or greater than 50 mg/kg. One, from near stall A-6, was from an area with both residual Type G and residual Type H materials. The measured concentration may have been influenced by nearby residual Type G material. Of the areas identified as having residual Type H material, 71,000 linear ft (37 percent) is along joints where residual Type G material is also present. The second sample of residual Type H material with a concentration equal to or greater than 50 mg/kg was collected from stall B-4.

6.0 USE OF THIS REPORT

This investigation summary report has been prepared for the exclusive use of The Boeing Company for specific application to the North Boeing Field Concrete Joint Material Sampling and Analysis Project. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau Associates. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

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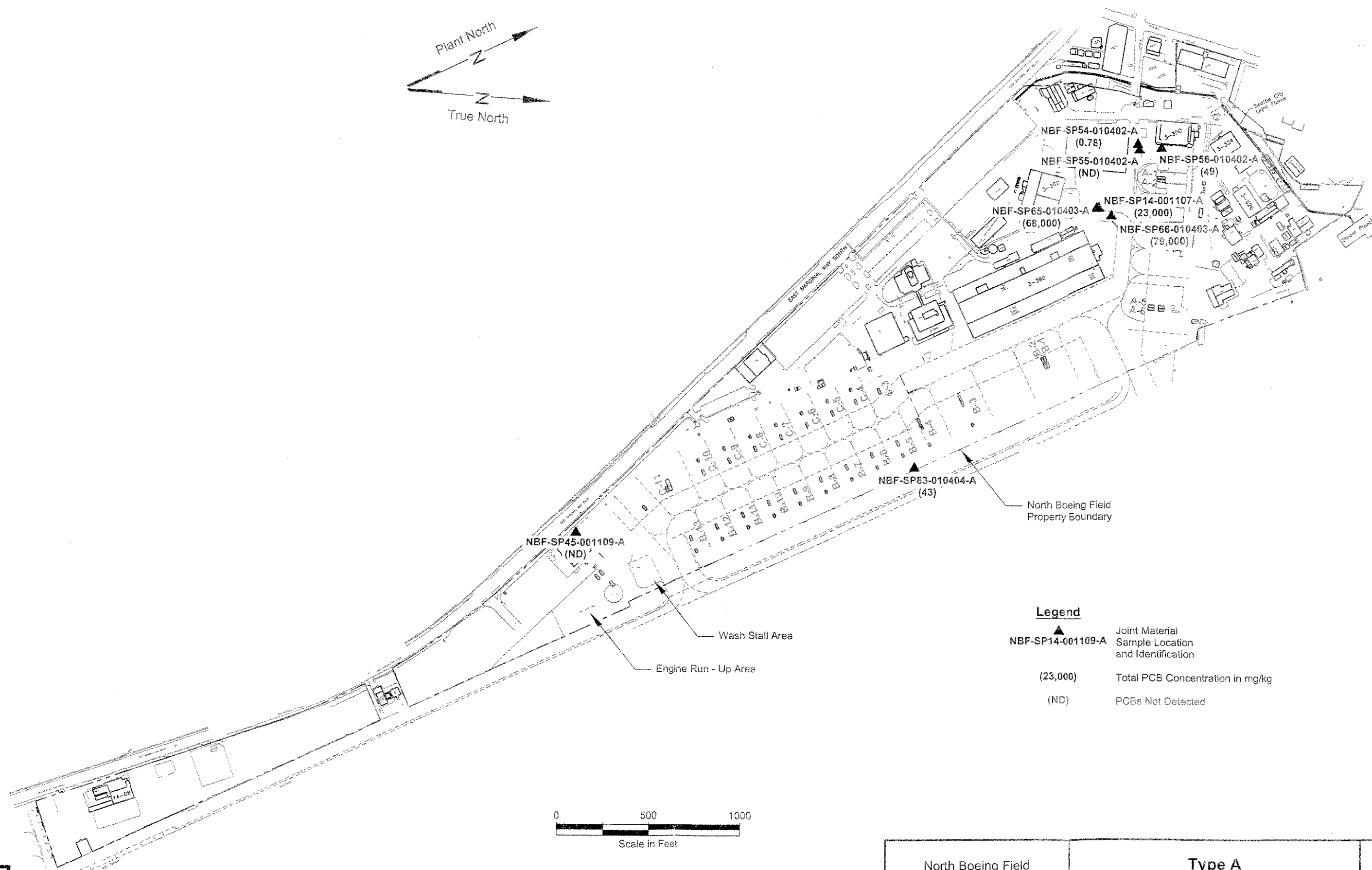
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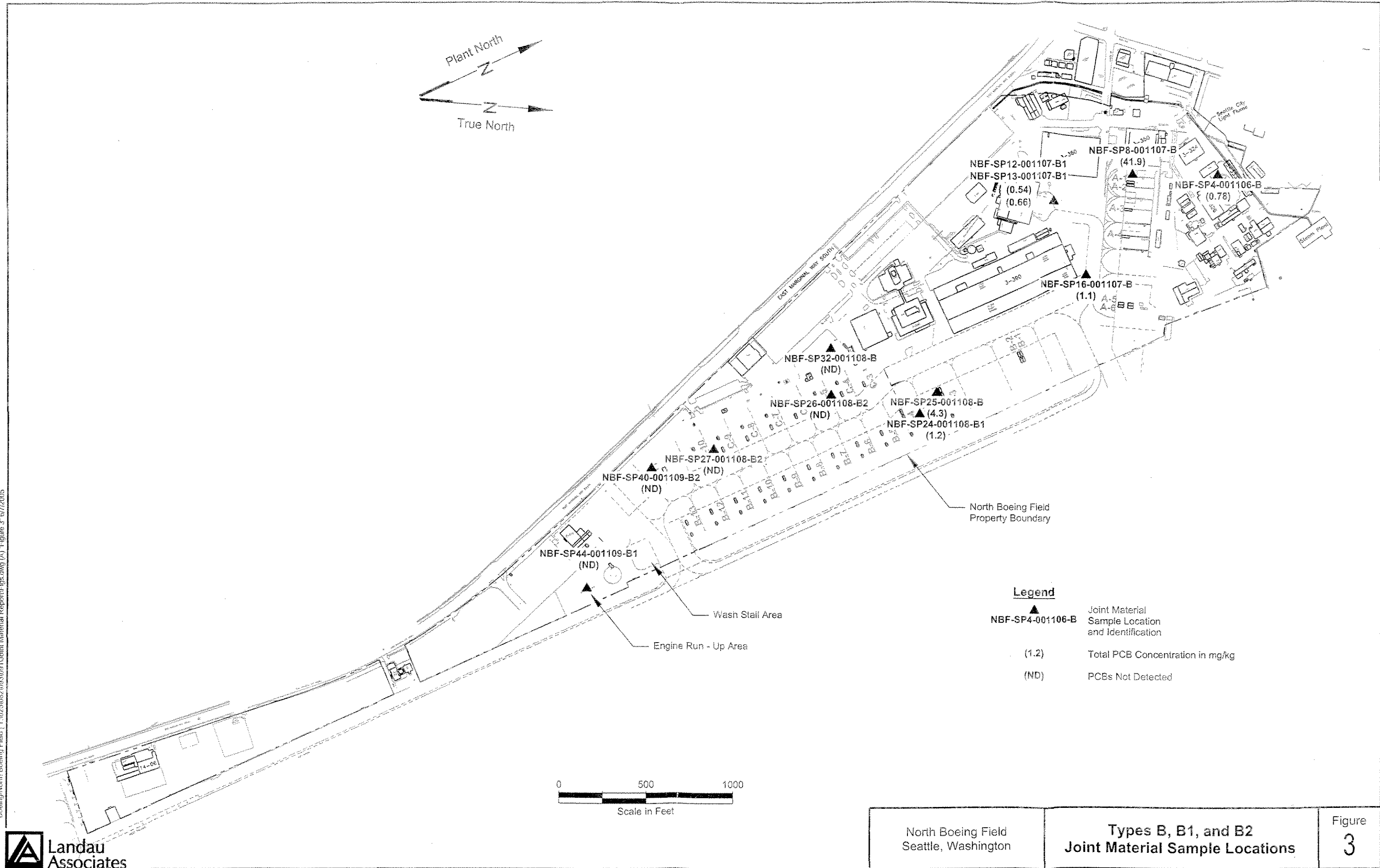


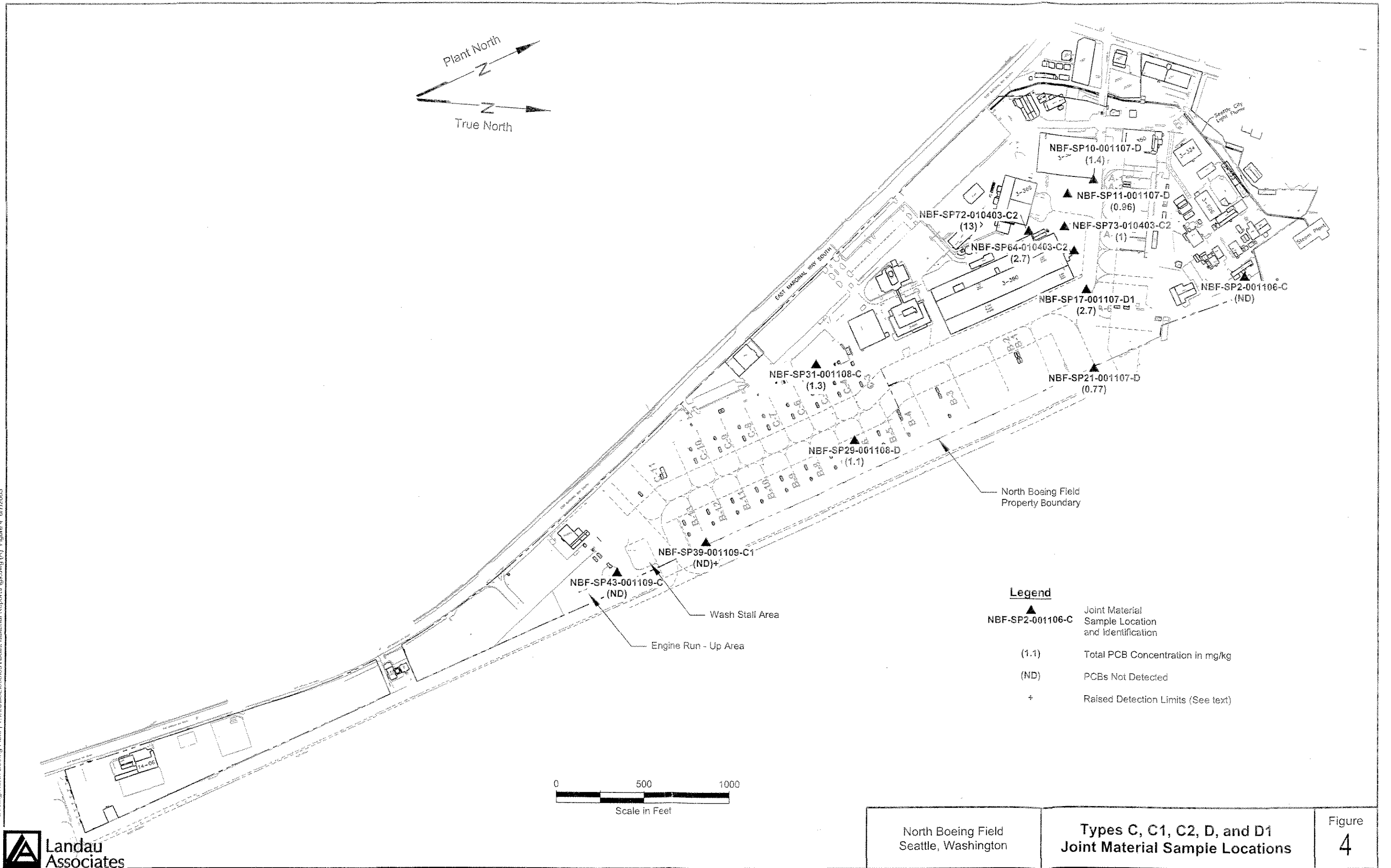
North Boeing Field
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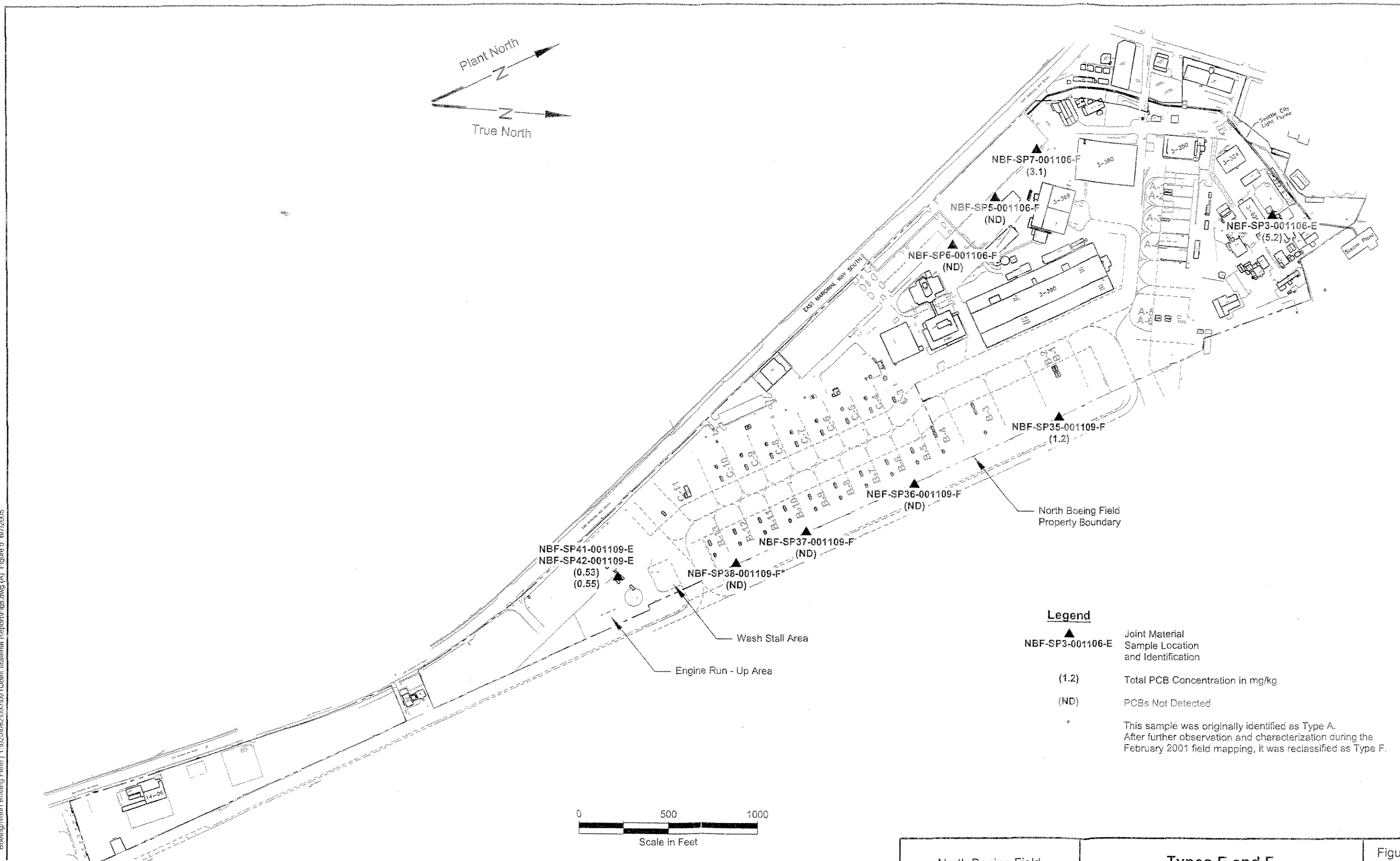
Type A
Joint Material Sample Locations

Figure
2

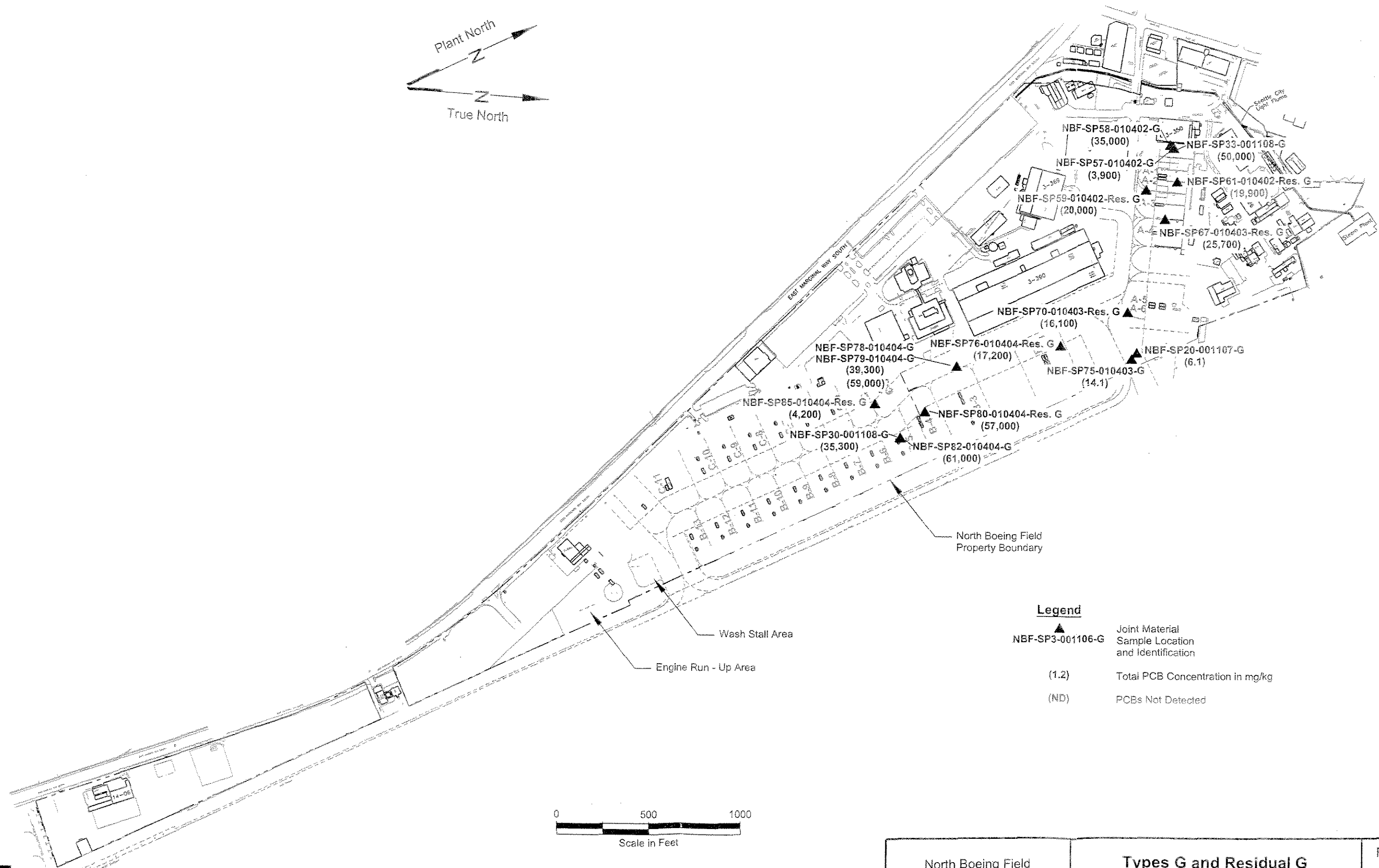
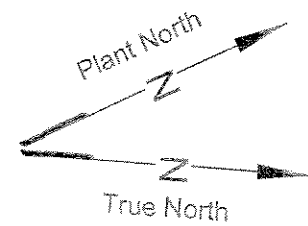
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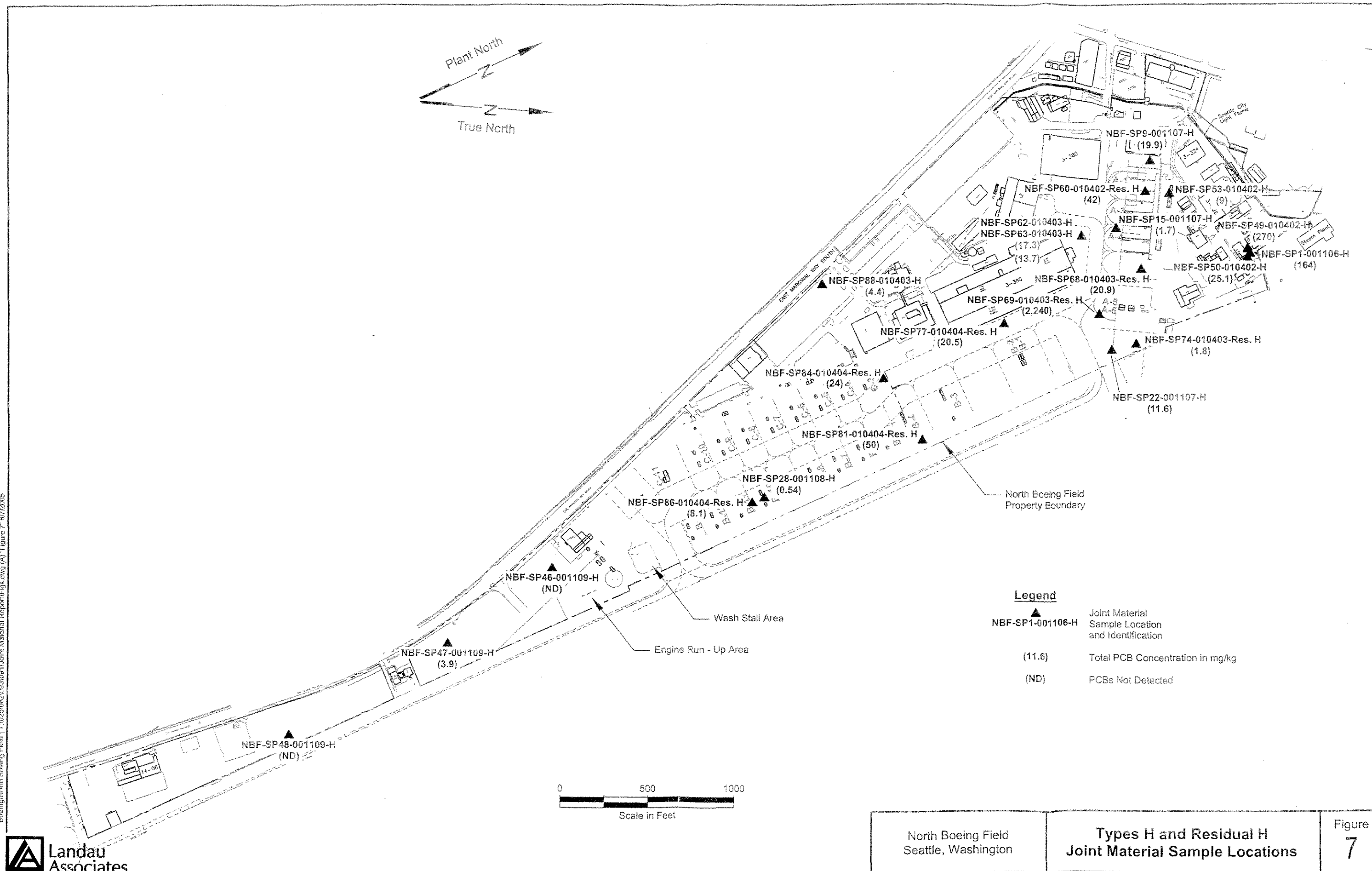
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North Boeing Field
Seattle, Washington

Types G and Residual G
Joint Material Sample Locations

Figure
6



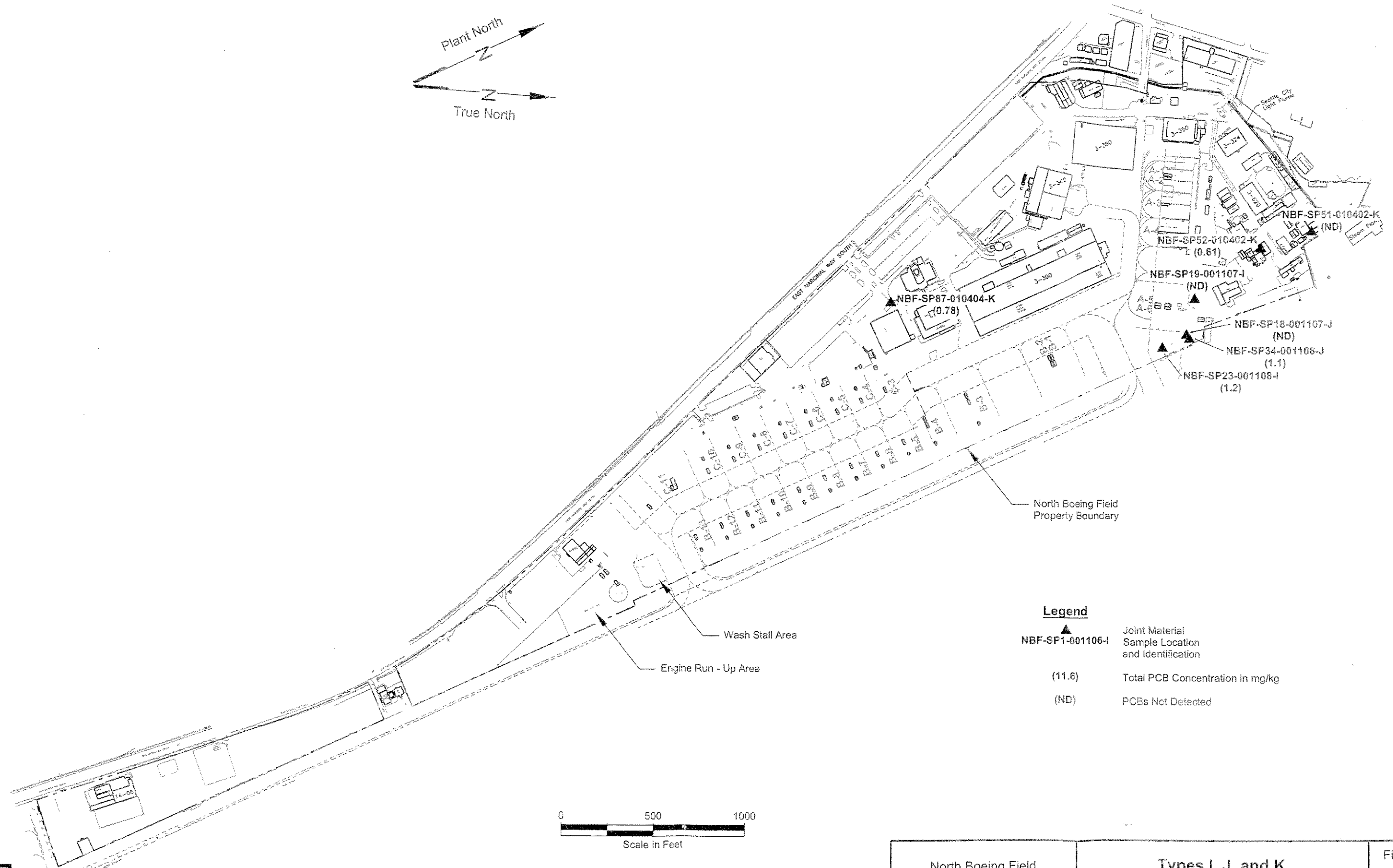
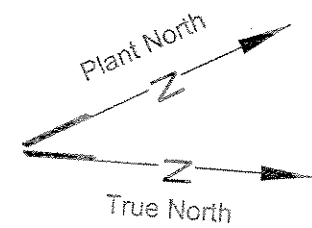


TABLE 1
JOINT MATERIAL TYPE DESCRIPTIONS

Type	Date Installed	Number of Samples Collected	Range of Total PCB Concentrations (ppm)	Description
A	Unknown	2 (Nov.) 6 (Apr.)	ND - 79,000	Black material with the consistency of a pencil eraser. Typically, the surface weathers with small cracks and wrinkles to a dull appearance. A freshly cut surface was slightly tacky with a shiny black appearance. The edges of the material do not bond tightly to the concrete giving a puffed-up appearance. This material was not generally associated with a backer rod.
B	Unknown	5 (Nov.)	ND - 41.9	A dark brown to black material with the consistency of a soft earplug. Typically, the surface weathers slightly to dull brown and has minimal cracking. A freshly cut surface was shiny black with a sticky texture. This material was usually in good condition with the edges tightly bonded to the concrete. Type B was usually associated with joints that have been replaced by cutting out the old material. Typically, this material was placed over a gray or green-yellow rounded foam backer rod. The backer rod was stained a bronze color where it contacted with the Type B material.
B1	2000	4 (Nov.)	ND - 1.2	This material is as described above with the following exception. The weathered surface was a glossy black to dark brown. New material tended to be glossier. The minimal surface cracking had little to no depth.
B2	1997	3 (Nov.)	ND	This material is as described above, but no backer rod was associated with this joint compound in new concrete at Concourse C.
C	Unknown	3 (Nov.)	ND - 1.3	A medium gray material with a consistency slightly harder than a foam earplug ranging to hardened caulking material. Typically, the surface is a dull medium gray color with minimal shallow surface cracking. A freshly cut surface is also flat. This material is usually in good condition and has been observed around the edges of newer concrete such as concrete sections that have been replaced in otherwise older areas. This material was not generally associated with a backer rod. This material has air bubbles or voids < 1-2mm in size.
C1	Unknown	1 (Nov.)	ND	A medium gray material with the consistency of bathtub caulk. Typically, the weathered surface is dull. A freshly cut surface is dull medium gray, although darker than the weathered surface. This material was found as residual material along the concrete edges. This material has pin-prick sized air bubbles.
C2	Unknown	3 (Apr.)	1 - 13	A gray-white material with a consistency of a fan belt. Typically, the upper surface weathers to a dull, dark brown or black, with minimal surface cracking. A freshly cut surface is a dull gray-white. This material is usually found in good condition.
D	Unknown	4 (Nov.)	0.77 - 1.4	A dark brown material with the consistency of a fan belt. Typically, the weathered surface is dull with minimal surface cracking. A freshly cut surface is shiny black. This material is usually in good condition, but the edges do not seem to be tightly bonded to the concrete. This material was not generally associated with a backer rod.
D1	Unknown	1 (Nov.)	2.7	This material is the same as described above with the following exceptions: a freshly cut surface is a dull black, and the edges of the material are tightly bonded to the concrete. This material is usually associated with crack repairs.

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TABLE 1
JOINT MATERIAL TYPE DESCRIPTIONS

Type	Date Installed	Number of Samples Collected	Range of Total PCB Concentrations (ppm)	Description
E	Unknown	3 (Nov.)	0.53 - 5.2	A light gray material with the consistency of bathtub caulk. Typically, the surface weathers to a dull white-gray. A freshly cut surface is dull light gray with trace amounts of tiny air bubbles. This material is in poor condition and is associated with joints that have been replaced around grates and utilities. Typically, this material leaves a residual white powder when rubbed. This material was not generally associated with a backer rod.
F	Unknown	7 (Nov.)	ND - 3.1	A black tar-like material with the consistency of a pliable elastic foam earplug. Typically, the surface weathers to a dull black with a cracked and wrinkled surface, or a cracked glassy surface. A freshly cut surface is shiny, black, and slightly tacky. This material was usually in good condition. This material was not generally associated with a backer rod.
G - Primary	Unknown	3 (Nov.) 6 (Apr.)	6.1 - 61,000	A pink-tan material with the consistency of dense caulking. Typically, the surface weathers to a dull pink-tan, with irregular cracks. A freshly cut surface is a dull light tan. This material does not bond tightly to the concrete edges. Occasionally, this material has a gray-white weathered surface that can be rubbed away to show the pink-tan weathered coloring. This material was not generally associated with a backer rod.
G - Residual		7 (Apr.)	4,200 - 57,000	
H - Primary	Unknown	8 (Nov.) 6 (Apr.)	ND - 270	A black tar-like material with a rock-like consistency. Typically, the surface weathers to a dull black with deep cracking and wrinkling. This brittle material does not cut, but instead fractures. A freshly fractured surface is a glassy black with irregular edges. This material is usually in poor condition, with edges not tightly bonded to the concrete. This material was not generally associated with a backer rod.
H - Residual		8 (Apr.)	1.8 - 2,240	
I	Unknown	2 (Nov.)	ND - 1.2	A dull brown-gray material with the consistency and density of a rubber bungee cord. Typically, the surface weathers with slight wrinkles. A freshly cut surface is a dull brown-gray. This material is usually in good condition. The material is well bonded to the edges of the concrete. This material was not generally associated with a backer rod. The material characteristics suggest it may be an intermediate type between Type B and Type D.
J	Unknown	2	ND - 1.1	A two-layer material with dark gray to black material approximately 1/8 th inch thick over a dull tan material with the consistency of a pencil eraser. Typically, the surface weathers to a dull slightly weathered dark gray. This material is associated with new concrete installed around the oil-water separator at Concourse A. This material was associated with a gray foam backer rod.
K	Unknown	3	ND - 0.78	A dark brown material with the consistency of a pencil eraser. Typically the weathered surface has a dull, irregular surface resembling tree-bark, with moss growing out of the upper surface. A freshly cut surface is dull, fibrous, and wood-like. Unlike other joint material types observed at NBF, Type K is not a grout-like substance. A knife-point may be used to shred small pieces of the material.

DRAFT

TABLE 2
NORTH BOEING FIELD
Joint Compound
All Matrices
All Classes
All Dates

<i>Analyte</i>	<i>Units</i>	<i>A-SP14</i> <i>11/07/2000</i>	<i>A-SP45</i> <i>11/09/2000</i>	<i>A-SP54</i> <i>04/02/2001</i>	<i>A-SP55</i> <i>04/02/2001</i>	<i>A-SP56</i> <i>04/02/2001</i>	<i>A-SP65</i> <i>04/03/2001</i>	<i>A-SP66</i> <i>04/03/2001</i>	<i>A-SP83</i> <i>04/04/2001</i>	<i>B-SP04</i> <i>11/06/2000</i>
Aroclor 1016	mg/kg	980 U	5 U	1 U	0.98 U	1 U	2000 U	2000 U	5 U	1 U
Aroclor 1221	mg/kg	2000 U	10 U	2 U	2 U	2 U	4000 U	4000 U	10 U	2 U
Aroclor 1232	mg/kg	980 U	5 U	1 U	0.98 U	1 U	2000 U	2000 U	5 U	1 U
Aroclor 1242	mg/kg	980 U	5 U	1 U	0.98 U	1 U	2000 U	2000 U	5 U	1 U
Aroclor 1248	mg/kg	980 U	5 U	1 U	0.98 U	1 U	2000 U	2000 U	5 U	1 U
Aroclor 1254	mg/kg	23000	5 U	0.78 J	0.98 U	14	52000	62000	27	0.78 J
Aroclor 1260	mg/kg	980 U	8.5 U	1 U	0.98 U	35	16000	17000	16	1 U
PCB, total	mg/kg	23000	10 U	0.78 J	2 U	49	68000	79000	43	0.78 J

TABLE 2
NORTH BOEING FIELD
Joint Compound
All Matrices
All Classes
All Dates

Analyte	Units	B-SP08 11/07/2000		B-SP16 11/07/2000		B-SP25 11/08/2000		B-SP32 11/08/2000		B1-SP12 11/07/2000		B1-SP12DUP 11/07/2000		B1-SP24 11/08/2000		B1-SP44 11/09/2000		B2-SP26 11/08/2000	
Aroclor 1016	mg/kg	0.98	U	0.99	U	1	U	1	U	0.99	U	0.98	U	0.99	U	0.98	U	0.98	U
Aroclor 1221	mg/kg	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Aroclor 1232	mg/kg	0.98	U	0.99	U	1	U	1	U	0.99	U	0.98	U	0.99	U	0.98	U	0.98	U
Aroclor 1242	mg/kg	0.98	U	0.99	U	1	U	1	U	0.99	U	0.98	U	0.99	U	0.98	U	0.98	U
Aroclor 1248	mg/kg	0.98	U	0.99	U	1	U	1	U	0.99	U	0.98	U	0.99	U	0.98	U	0.98	U
Aroclor 1254	mg/kg	32		1.1		4.3		1	U	0.54	J	0.66	J	1.2		0.98	U	0.98	U
Aroclor 1260	mg/kg	9.9		0.99	U	1	U	1	U	0.99	U	0.98	U	0.99	U	0.98	U	0.98	U
PCB, total	mg/kg	41.9		1.1		4.3		2	U	0.54	J	0.66	J	1.2		2	U	2	U

TABLE 2
NORTH BOEING FIELD
Joint Compound
All Matrices
All Classes
All Dates

<i>Analyte</i>	<i>Units</i>	<i>B2-SP27</i> <i>11/08/2000</i>	<i>B2-SP40</i> <i>11/09/2000</i>	<i>C-SP02</i> <i>11/06/2000</i>	<i>C-SP31</i> <i>11/08/2000</i>	<i>C-SP43</i> <i>11/09/2000</i>	<i>C1-SP39</i> <i>11/09/2000</i>	<i>C2-SP64</i> <i>04/03/2001</i>	<i>C2-SP72</i> <i>04/03/2001</i>	<i>C2-SP73</i> <i>04/03/2001</i>
Aroclor 1016	mg/kg	0.98 U	1 U	0.99 U	0.98 U	1 U	20 U	1 U	2 U	0.98 U
Aroclor 1221	mg/kg	2 U	2 U	2 U	2 U	2 U	40 U	2 U	3.9 U	2 U
Aroclor 1232	mg/kg	0.98 U	1 U	0.99 U	0.98 U	1 U	20 U	1 U	2 U	0.98 U
Aroclor 1242	mg/kg	0.98 U	1 U	0.99 U	0.98 U	1 U	20 U	1 U	2 U	0.98 U
Aroclor 1248	mg/kg	0.98 U	1 U	0.99 U	0.98 U	1 U	40 U	1 U	4.5 U	0.98 U
Aroclor 1254	mg/kg	0.98 U	1 U	1.1 U	1.3	1 U	270 U	1.4	13	1
Aroclor 1260	mg/kg	0.98 U	1 U	2.5 U	0.98 U	1 U	20 U	1.3	5.3 U	0.98 U
PCB, total	mg/kg	2 U	2 U	2.5 U	1.3	2 U	270 U	2.7	13	1

TABLE 2
NORTH BOEING FIELD
Joint Compound
All Matrices
All Classes
All Dates

Analyte	Units	D-SP10 11/07/2000	D-SP11 11/07/2000	D-SP21 11/07/2000	D-SP29 11/08/2000	D1-SP17 11/07/2000	E-SP03 11/06/2000	E-SP41 11/09/2000	E-SP41DUP 11/09/2000	F-SP05 11/06/2000
Aroclor 1016	mg/kg	0.99 U	1 U	0.99 U	0.99 U	0.98 U	0.98 U	0.98 U	1 U	0.98 U
Aroclor 1221	mg/kg	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor 1232	mg/kg	0.99 U	1 U	0.99 U	0.99 U	0.98 U	0.98 U	0.98 U	1 U	0.98 U
Aroclor 1242	mg/kg	0.99 U	1 U	0.99 U	0.99 U	0.98 U	0.98 U	0.98 U	1 U	0.98 U
Aroclor 1248	mg/kg	0.99 U	1 U	0.99 U	0.99 U	0.98 U	0.98 U	0.98 U	1 U	0.98 U
Aroclor 1254	mg/kg	1.4	0.96 J	0.77 J	1.1	2.7	0.98 U	0.53 J	0.55 J	0.98 U
Aroclor 1260	mg/kg	0.99 U	1 U	0.99 U	0.99 U	0.98 U	5.2	0.98 U	1 U	0.98 U
PCB, total	mg/kg	1.4	0.96 J	0.77 J	1.1	2.7	5.2	0.53 J	0.55 J	2 U

TABLE 2
NORTH BOEING FIELD
Joint Compound
All Matrices
All Classes
All Dates

Analyte	Units	F-SP06 11/06/2000		F-SP07 11/06/2000		F-SP35 11/09/2000		F-SP36 11/09/2000		F-SP37 11/09/2000		F-SP38 11/09/2000		G-SP20 11/07/2000		G-SP30 11/08/2000		G-SP33 11/08/2000	
Aroclor 1016	mg/kg	0.98	U	0.99	U	0.98	U	1	U	0.98	U	1	U	0.98	U	990	U	980	U
Aroclor 1221	mg/kg	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2000	U	2000	U
Aroclor 1232	mg/kg	0.98	U	0.99	U	0.98	U	1	U	0.98	U	1	U	0.98	U	990	U	980	U
Aroclor 1242	mg/kg	0.98	U	0.99	U	0.98	U	1	U	0.98	U	1	U	0.98	U	990	U	980	U
Aroclor 1248	mg/kg	0.98	U	0.99	U	0.98	U	1	U	0.98	U	1.4	U	0.98	U	990	U	980	U
Aroclor 1254	mg/kg	0.98	U	1.5		1.2		1	U	1.1	U	2.3	U	6.1		26000		31000	
Aroclor 1260	mg/kg	0.98	U	1.6		0.98	U	1	U	0.98	U	1	U	0.98	U	9300		19000	
PCB, total	mg/kg	2	U	3.1		1.2		2	U	2	U	2.3	U	6.1		35300		50000	

TABLE 2
NORTH BOEING FIELD
Joint Compound
All Matrices
All Classes
All Dates

Analyte	Units	H-SP46 11/09/2000	H-SP47 11/09/2000	H-SP48 11/09/2000	H-SP49 04/02/2001	H-SP50 04/02/2001	H-SP53 04/02/2001	H-SP60 Res 04/02/2001	H-SP63 04/03/2001	H-SP62DUP 04/03/2001
Aroclor 1016	mg/kg	0.98 U	0.98 U	0.98 U	9.8 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1221	mg/kg	2 U	2 U	2 U	20 U	2 U	2 U	2 U	2 U	2 U
Aroclor 1232	mg/kg	0.98 U	0.98 U	0.98 U	9.8 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1242	mg/kg	0.98 U	0.98 U	0.98 U	9.8 U	1 U	1 U	1 U	1 U	1 U
Aroclor 1248	mg/kg	0.98 U	0.98 U	0.98 U	67 U	7.1	1 U	1 U	1 U	1 U
Aroclor 1254	mg/kg	0.98 U	2.2	0.98 U	270	18	5.4	23	10	8.6
Aroclor 1260	mg/kg	0.98 U	1.7	0.98 U	83 U	1 U	3.6	19	7.3	5.1
PCB, total	mg/kg	2 U	3.9	2 U	270	25.1	9	42	17.3	13.7

TABLE 2
NORTH BOEING FIELD
Joint Compound
All Matrices
All Classes
All Dates

Analyte	Units	H-SP68 Res 04/03/2001	H-SP69 Res 04/03/2001	H-SP74 Res 04/03/2001	H-SP77 Res 04/04/2001	H-SP81 Res 04/04/2001	H-SP84 Res 04/04/2001	H-SP86 Res 04/04/2001	H-SP88 04/04/2001	I-SP19 11/07/2000
Aroclor 1016	mg/kg	1 U	100 U	1 U	0.99 U	5 U	1 U	1 U	1 U	0.99 U
Aroclor 1221	mg/kg	2 U	200 U	2 U	2 U	9.9 U	2 U	2 U	2 U	2 U
Aroclor 1232	mg/kg	1 U	100 U	1 U	0.99 U	5 U	1 U	1 U	1 U	0.99 U
Aroclor 1242	mg/kg	1 U	100 U	1 U	0.99 U	5 U	1 U	1 U	1 U	0.99 U
Aroclor 1248	mg/kg	1 U	100 U	1 U	0.99 U	9.5 U	2 U	2.2 U	1 U	0.99 U
Aroclor 1254	mg/kg	11	1400	1.8	12	36	13	4.8	2.4	0.99 U
Aroclor 1260	mg/kg	9.9	840	1 U	8.5	14	11	3.3	2	0.99 U
PCB, total	mg/kg	20.9	2240	1.8	20.5	50	24	8.1	4.4	2 U

TABLE 2
NORTH BOEING FIELD
Joint Compound
All Matrices
All Classes
All Dates

Analyte	Units	I-SP23 11/08/2000	J-SP18 11/07/2000	J-SP34 11/08/2000	K-SP51 04/02/2001	K-SP52 04/02/2001	K-SP87 04/04/2001
Aroclor 1016	mg/kg	0.99 U	0.99 U	1 U	1 U	1 U	1 U
Aroclor 1221	mg/kg	2 U	2 U	2 U	2 U	2 U	2 U
Aroclor 1232	mg/kg	0.99 U	0.99 U	1 U	1 U	1 U	1 U
Aroclor 1242	mg/kg	0.99 U	0.99 U	1 U	1 U	1 U	1 U
Aroclor 1248	mg/kg	0.99 U	0.99 U	1 U	1 U	1 U	1 U
Aroclor 1254	mg/kg	1.2	0.99 U	1.1	1 U	0.61 J	0.78 J
Aroclor 1260	mg/kg	0.99 U	0.99 U	1 U	1 U	1 U	1 U
PCB, total	mg/kg	1.2	2 U	1.1	2 U	0.61 J	0.78 J

TABLE 3
SUMMARY OF TOTAL PCB CONCENTRATIONS
NORTH BOEING FIELD

Joint Material Type	Location	Sample Identification	Date	Sum of Detected Aroclor Concentrations (mg/kg)
A	A-SP45	NBF-SP45-001109-A	11/9/2000	ND
A	A-SP55	NBF-SP55-010402-A	4/2/2001	ND
A	A-SP54	NBF-SP54-010402-A	4/2/2001	0.78 J
A	A-SP83	NBF-SP83-010404-A	4/4/2001	43
A	A-SP56	NBF-SP56-010402-A	4/2/2001	49
A	A-SP14	NBF-SP14-001107-A	11/7/2000	23,000
A	A-SP65	NBF-SP65-010403-A	4/3/2001	68,000
A	A-SP66	NBF-SP66-010403-A	4/3/2001	79,000
B	B1-SP44	NBF-SP44-001109-B1	11/9/2000	ND
B	B2-SP26	NBF-SP26-001108-B2	11/8/2000	ND
B	B2-SP27	NBF-SP27-001108-B2	11/8/2000	ND
B	B2-SP40	NBF-SP40-001109-B2	11/9/2000	ND
B	B-SP32	NBF-SP32-001108-B	11/8/2000	ND
B	B1-SP12	NBF-SP12-001107-B1	11/7/2000	0.54 J
B	B1-SP12	NBF-SP13-B1 (Dup of SP12)	11/7/2000	0.66 J
B	B-SP04	NBF-SP4-001106-B	11/6/2000	0.78 J
B	B-SP16	NBF-SP16-001107-B	11/7/2000	1.1
B	B1-SP24	NBF-SP24-001108-B1	11/8/2000	1.2
B	B-SP25	NBF-SP25-001108-B	11/8/2000	4.3
B	B-SP08	NBF-SP8-001107-B	11/7/2000	41.9
C	C1-SP39	NBF-SP39-001109-C1	11/9/2000	ND
C	C-SP02	NBF-SP2-001106-C	11/6/2000	ND
C	C-SP43	NBF-SP43-001109-C	11/9/2000	ND
C	C2-SP73	NBF-SP73-010403-C2	4/3/2001	1
C	C-SP31	NBF-SP31-001108-C	11/8/2000	1.3
C	C2-SP64	NBF-SP64-010403-C2	4/3/2001	2.7
C	C2-SP72	NBF-SP72-010403-C2	4/3/2001	13
D	D-SP21	NBF-SP21-001107-D	11/7/2000	0.77 J
D	D-SP11	NBF-SP11-001107-D	11/7/2000	0.96 J
D	D-SP29	NBF-SP29-001108-D	11/8/2000	1.1
D	D-SP10	NBF-SP10-001107-D	11/7/2000	1.4
D	D1-SP17	NBF-SP17-001107-D1	11/7/2000	2.7
E	E-SP41	NBF-SP41-001109-E	11/9/2000	0.53 J
E	E-SP41	NBF-SP42-E (Dup of SP41)	11/9/2000	0.55 J
E	E-SP03	NBF-SP3-001106-E	11/6/2000	5.2

TABLE 3
SUMMARY OF TOTAL PCB CONCENTRATIONS
NORTH BOEING FIELD

Joint Material Type	Location	Sample Identification	Date	Sum of Detected Aroclor Concentrations (mg/kg)
F	F-SP05	NBF-SP5-001106-F	11/6/2000	ND
F	F-SP06	NBF-SP6-001106-F	11/6/2000	ND
F	F-SP36	NBF-SP36-001109-F	11/9/2000	ND
F	F-SP37	NBF-SP37-001109-F	11/9/2000	ND
F	F-SP38	NBF-SP38-001109-A	11/9/2000	ND
F	F-SP35	NBF-SP35-001109-F	11/9/2000	1.2
F	F-SP07	NBF-SP7-001106-F	11/6/2000	3.1
G	G-SP20	NBF-SP20-001107-G	11/7/2000	6.1
G	G-SP75	NBF-SP75-010403-G	4/3/2001	14.1
G	G-SP57	NBF-SP57-010402-G	4/2/2001	3,900
G	G-SP85 Res	NBF-SP85-010404-Res.G	4/4/2001	4,200
G	G-SP70 Res	NBF-SP70-010403-Res.G	4/3/2001	16,100
G	G-SP76 Res	NBF-SP76-010404-Res.G	4/4/2001	17,200
G	G-SP61 Res	NBF-SP61-010402-RES.G	4/2/2001	19,900
G	G-SP59 Res	NBF-SP59-010402-RES.G	4/2/2001	20,000
G	G-SP67 Res	NBF-SP67-010403-Res.G	4/3/2001	25,700
G	G-SP58	NBF-SP58-010402-G	4/2/2001	35,000
G	G-SP30	NBF-SP30-001108-G	11/8/2000	35,300
G	G-SP78	NBF-SP78-010404-G	4/4/2001	39,300
G	G-SP33	NBF-SP33-001108-G	11/8/2000	50,000
G	G-SP80 Res	NBF-SP80-010404-Res.G	4/4/2001	57,000
G	G-SP78	NBF-SP79 (Dup of 78)	4/4/2001	59,000
G	G-SP82	NBF-SP82-010404-G	4/4/2001	61,000
H	H-SP46	NBF-SP46-001109-H	11/9/2000	ND
H	H-SP48	NBF-SP48-001109-H	11/9/2000	ND
H	H-SP28	NBF-SP28-001108-H	11/8/2000	0.54 J
H	H-SP15	NBF-SP15-001107-H	11/7/2000	1.7
H	H-SP74 Res	NBF-SP74-010403-Res.H	4/3/2001	1.8
H	H-SP47	NBF-SP47-001109-H	11/9/2000	3.9
H	H-SP88	NBF-SP88-010404-H	4/4/2001	4.4
H	H-SP86 Res	NBF-SP86-010404-Res.H	4/4/2001	8.1
H	H-SP53	NBF-SP53-010402-H	4/2/2001	9
H	H-SP22	NBF-SP22-001107-H	11/7/2000	11.6
H	H-SP62	NBF-SP63 (Dup of 62)	4/3/2001	13.7
H	H-SP62	NBF-SP62-010403-H	4/3/2001	17.3
H	H-SP09	NBF-SP9-001107-H	11/7/2000	19.9
H	H-SP77 Res	NBF-SP77-010404-Res.H	4/4/2001	20.5
H	H-SP68 Res	NBF-SP68-010403-Res.H	4/3/2001	20.9
H	H-SP84 Res	NBF-SP84-010404-Res.H	4/4/2001	24
H	H-SP50	NBF-SP50-010402-H	4/2/2001	25.1
H	H-SP60 Res	NBF-SP60-010402-RES.H	4/2/2001	42
H	H-SP81 Res	NBF-SP81-010404-Res.H	4/4/2001	50
H	H-SP01	NBF-SP1-001106-H	11/6/2000	164
H	H-SP49	NBF-SP49-010402-H	4/2/2001	270
H	H-SP68 Res	NBF-SP69-010403-Res.H	4/3/2001	2,240

TABLE 3
SUMMARY OF TOTAL PCB CONCENTRATIONS
NORTH BOEING FIELD

Joint Material Type	Location	Sample Identification	Date	Sum of Detected Aroclor Concentrations (mg/kg)
I	I-SP19	NBF-SP19-001107-I	11/7/2000	ND
I	I-SP23	NBF-SP23-001108-I	11/8/2000	1.2
J	J-SP18	NBF-SP18-001107-J	11/7/2000	ND
J	J-SP34	NBF-SP34-001108-J	11/8/2000	1.1
K	K-SP51	NBF-SP51-010402-K	4/2/2001	ND
K	K-SP52	NBF-SP52-010402-K	4/2/2001	0.61 J
K	K-SP87	NBF-SP87-010404-K	4/4/2001	0.78 J

U = Indicates compound was analyzed for, but was not detected at the reported sample detection limit.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

ND = Not detected.

TABLE 4
STATISTICAL SUMMARY - TYPES A, G, AND H JOINT MATERIAL TOTAL PCB DATA
NORTH BOEING FIELD

Statistical Parameter (a)	Type A	Type G	Type H
Number of Samples	8	16	22
Number of Detects	6	16	20
Percent Non-Detects	25	0	9
Minimum Detected Value (ppm)	0.78	6.1	0.54
Maximum Detected Value (ppm)	79,000	60,000	2240
Upper Confidence Limit (b)	79,000 (c)	36,996	433 (d)
Mean Detected Value (ppm)	28,349	27,726	134 (d)
Standard Deviation of Detected Values (ppm)	36,255	21,151	474 (d)
Median of Detected Values (ppm)	11,525	22,850	15.5 (d)

(a) Statistics are calculated using total detected PCB concentrations (i.e., sum of individual aroclor concentrations).

(b) The upper confidence limit was calculated using MTCAsat Version 2.0, unless otherwise noted.

(c) The data set was determined to be neither lognormally nor normally distributed by MTCAsat; therefore, in accordance with the *Supplement to Statistical Guidance for Ecology Site Managers* (Ecology 1993), the upper confidence level was set equal to the maximum concentration in the data set.

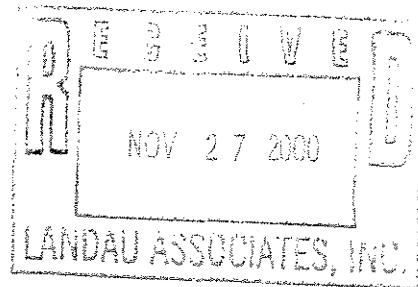
(d) The data set consists of less than 15 percent nondetects (i.e., no aroclors were detected in a sample). According to the *Supplement to Statistical Guidance for Ecology Site Managers* (Ecology 1993), the nondetected values are to be replaced with 1/2 the detection limit; however, because the data set consists of total PCB concentrations, a modification was made as follows: Only aroclors 1254 and 1260 were detected in Type A samples; therefore, 1/2 of the detection limit for each of these aroclors was summed and used as the total PCB concentration when no aroclors were detected in a sample. For example, for sample SP45, no aroclors were detected. The detection limit for aroclors 1254 and 1260 were 5 ppm and 8.5 ppm, respectively; therefore, a total PCB concentration of 6.75 ppm for sample SP45 was used to calculate the UCL, mean, standard deviation, and median of the Type A data set.

Laboratory Data Sheets



Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 17, 2000



Joan McGilton
The Boeing Company
Energy and Environmental Affairs
P.O. Box 3707, M/S 7A-XA
Seattle, WA 98124-2207

RE: Project: ~~NBF~~ ^{KSH} Joint Compound
ARI Job CK34

Dear Joan,

Please find enclosed the original Chain of Custody (COC) record and analytical results for the above referenced project. Seven solid samples were received in good condition on November 6, 2000.

Samples were analyzed for PCB Aroclors referencing EPA SW-846 method 8082. Extracts were cleaned up with sulfuric acid and elemental mercury to eliminate chromatographic interferences. Despite the cleanups, some analytes are reported with raised detection limits due to peak co-elution (see "Y" flag).

Several samples required extract dilution and reanalysis. Surrogate spikes were diluted out of the extracts.

Quality control analysis results are included for your review. A copy of this report will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.


Stephanie Lucas
Client Services

SPL/sl
Enclosures

cc: Kris Hendrickson, Landau, Edmonds

Chain of Custody Record & Laboratory Analysis Request

10
00-21061



Analytical Resources, Incorporated
Analytical Chemist and Consultants
400 Ninth Avenue North
Seattle, WA 98109-4708
(206) 621-6490
(206) 621-7523 (Fax)

Date: 11/6/00
Page 1 of 1
Number of coolers: 1
Cooler Temp: -0.5°C

ARI Client: Boeing
Phone#: 865-6454

Client Contact: Joan McGilton, MC 7A-WH

Client Project ID: NBF Concrete Joint Material

Samplers: Ernie Carlson / Jennifer Parsons

	Sample ID	Date	Time	Matx	No Cont	Lab ID
1	NBF-SP1-001106-H	11/6/00	12:15	S	1	
2	NBF-SP2-001106-C		12:55		1	
3	NBF-SP3-001106-E		13:45		1	
4	NBF-SP4-001106-B		14:05		3	
5	NBF-SP5-001106-F		14:40		1	
6	NBF-SP6-001106-F		15:00		1	
7	NBF-SP7-001106-F	↓	15:15	↓	1	

PCBs
EPA Method 8082

Analysis Required							Notes/Comments
							MS/MSD

ARI Project No:

Relinquished by: (Signature) Jennifer Parsons

Relinquished by: (Signature)

Relinquished by: (Signature)

T.A.T. Requested: Standard 2 wk

Printed Name: Jennifer Parsons

Printed Name:

Printed Name:

Comments/Special Instructions:

Company: The Boeing Company

Company:

Company:

① OC Lab Results to Affn:

Date: 11/6/00 Time: 16:07

Date: Time:

Date: Time:

Kris Hendrickson
Landau Assoc. Inc.
with electronic copy

Received by: (Signature) Dennis M. Sakroza

Received by: (Signature)

Received by: (Signature)

② Target PQL = 1.5 mg/kg per Aroclor

Printed Name: DENNIS M. SAKROZA

Printed Name:

Printed Name:

Company: ARI

Company:

Company:

Date: 11/6/00 Time: 1607

Date: Time:

Date: Time:

Boeing Charge:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following Standard Operating Procedures and our Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI releases ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the client.

8-12-00 X6-7-00 61 1-0 34

SOIL AROCLOR SURROGATE SUMMARY

Matrix: Joint Compound

QC Report No: CK34

Project: NBF Concrete Joint Material

LIMS ID	Lab ID	Client ID	TCMX #	DCBP #	TOT OUT
00-21055MB	110700MB	Method Blank	102%	98.0%	0
00-21055SB	110700SB	Lab Control	106%	102%	0
00-21055	CK34A	SP1-001106-H	D	D	0
00-21056	CK34B	SP2-001106-C	93.5%	113%	0
00-21057	CK34C	SP3-001106-E	102%	91.0%	0
00-21058MB	110700MB	Method Blank	91.2%	101%	0
00-21058SB	110700SB	Lab Control	93.5%	101%	0
00-21058	CK34E	SP5-001106-F	73.2%	72.5%	0
00-21059	CK34F	SP6-001106-F	72.2%	68.8%	0
00-21060	CK34G	SP7-001106-F	83.0%	72.5%	0
00-21061	CK34D	SP4-001106-B	80.5%	69.0%	0
00-21061MS	CK34D	SP4-001106-B-MS	98.5%	77.8%	0
00-21061MSD	CK34D	SP4-001106-B-MSD	99.2%	80.8%	0

QC LIMITS

(TCMX) = Tetrachloro-m-xylene

(34-128)

(DCBP) = Decachlorobiphenyl

(39-132)

Column to be used to flag recovery values

* Values outside of required QC limits

D Surrogate Compound diluted out

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: Method Blank

Lab Sample ID: CK34MB
LIMS ID: 00-21055
Matrix: Joint Compound

QC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Sampled: NA
Data Release Authorized: *OK 11/17/00*
Reported: 11/17/00

Date Received: NA

Date extracted: 11/07/00
Date analyzed: 11/12/00 13:47
Instrument ID: ECD1
Sample Amount: 2.00 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	98.0%
Tetrachlorometaxylene	102%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECDLab Sample ID: CK34
LIMS ID: 00-21055
Matrix: Joint CompoundQC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Data Release Authorized:

Reported: 11/17/00

CR 11/17/00

LABORATORY CONTROL SAMPLE SPIKE RECOVERY

Date extracted: 11/07/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
-------------	----------------	----------------	---------------

LABORATORY CONTROL SAMPLE

Aroclor 1242	10200	10000	102%
--------------	-------	-------	------

Aroclor Surrogate Recoveries

Decachlorobiphenyl	102%
Tetrachlorometaxylene	106%

Values Reported in Total ug/kg as received

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: Method Blank

Lab Sample ID: CK34MB
LIMS ID: 00-21058
Matrix: Joint Compound

QC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Sampled: NA
Data Release Authorized: *OK 11/17/00*
Reported: 11/17/00 Date Received: NA

Date extracted: 11/07/00
Date analyzed: 11/16/00 23:35
Instrument ID: ECD1
Sample Amount: 2.00 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: Yes
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	101%
Tetrachlorometaxylene	91.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECDLab Sample ID: CK34
LIMS ID: 00-21058
Matrix: Joint CompoundQC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint MaterialData Release Authorized:
Reported: 11/17/00

CK 11/17/00

LABORATORY CONTROL SAMPLE SPIKE RECOVERY

Date extracted: 11/07/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
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LABORATORY CONTROL SAMPLE

Aroclor 1242	9690	10000	96.9%
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Aroclor Surrogate Recoveries

Decachlorobiphenyl	101%
Tetrachlorometaxylene	93.5%

Values Reported in Total ug/kg as received

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: SP1-001106-H

Lab Sample ID: CK34A
LIMS ID: 00-21055
Matrix: Joint Compound

QC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Released: 11/06/00
Date Received: 11/06/00
Reported: 11/17/00 *CK34A*

Date extracted: 11/07/00
Date analyzed: 11/11/00 18:57
Instrument ID: ECD1
Sample Amount: 2.00 g-as-rec
Final Ext Vol: 20 mL
GPC Cleanup: No
Florisil Cleanup: No
Sulfur Cleanup: No
Conc/Dilution Factor: 1:20

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	20,000 U
53459-21-9	Aroclor 1242	20,000 U
12672-29-6	Aroclor 1248	54,000
11097-69-1	Aroclor 1254	110,000
11096-82-5	Aroclor 1260	20,000 U
11104-28-2	Aroclor 1221	40,000 U
11141-16-5	Aroclor 1232	20,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: SP2-001106-C

Lab Sample ID: CK34B
LIMS ID: 00-21056
Matrix: Joint Compound

QC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Sampled: 11/06/00
Data Release Authorized: *CR 11/17/00* Date Received: 11/06/00
Reported: 11/17/00

Date extracted: 11/07/00 GPC Cleanup: No
Date analyzed: 11/11/00 19:53 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	1,100 Y
11096-82-5	Aroclor 1260	2,500 Y
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	113%
Tetrachlorometaxylene	93.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: SP3-001106-E

Lab Sample ID: CK34C
LIMS ID: 00-21057
Matrix: Joint Compound

QC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Released: 11/17/00
Data Release Authorized: *OK 11/17/00*
Reported: 11/17/00
Date Sampled: 11/06/00
Date Received: 11/06/00

Date extracted: 11/07/00
Date analyzed: 11/13/00 10:49
Instrument ID: ECD1
Sample Amount: 2.03 g-as-rec
Final Ext Vol: 20 mL
GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	5,200
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	91.0%
Tetrachlorometaxylene	102%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: SP4-001106-B

Lab Sample ID: CK34D
LIMS ID: 00-21061
Matrix: Joint Compound

QC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Sampled: 11/06/00
Data Release Authorized: Date Received: 11/06/00
Reported: 11/17/00 *CK w/17/00*

Date extracted: 11/07/00
Date analyzed: 11/13/00 12:46
Instrument ID: ECD1
Sample Amount: 2.00 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	780 J
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	69.0%
Tetrachlorometaxylene	80.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: SP4-001106-B

MATRIX SPIKE

Lab Sample ID: CK34DMS

QC Report No: CK34-Boeing Corporate SHEA

LIMS ID: 00-21061

Project: NBF Concrete Joint Material

Matrix: Joint Compound

Date Sampled: 11/06/00

Data Release Authorized:

Date Received: 11/06/00

Reported: 11/17/00

CK 11/17/00

Date extracted: 11/07/00

GPC Cleanup: No

Date analyzed: 11/13/00 13:24

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.00 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	77.8%
Tetrachlorometaxylene	98.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES 
INCORPORATED

Sample No: SP4-001106-B

SPIKE DUPLICATE

Lab Sample ID: CK34DMSD

QC Report No: CK34-Boeing Corporate SHEA

LIMS ID: 00-21061

Project: NBF Concrete Joint Material

Matrix: Joint Compound

Date Sampled: 11/06/00

Data Release Authorized: *OK 11/17/00*

Date Received: 11/06/00

Reported: 11/17/00

Date extracted: 11/07/00

GPC Cleanup: No

Date analyzed: 11/13/00 14:02

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.02 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	990 U
11096-82-5	Aroclor 1260	990 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	80.8%
Tetrachlorometaxylene	99.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Lab Sample ID: CK34D
LIMS ID: 00-21061
Matrix: Joint Compound

Sample No: SP4-001106-B
QC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Received: 11/06/00

Data Release Authorized:
Reported: 11/17/00 *CR 11/17/00*

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY
Date extracted: 11/07/00

CONSTITUENT	SAMPLE VALUE	SPIKE FOUND	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE					
Aroclor 1242	< 1000	8120	10000	81.2%	
MATRIX SPIKE DUPLICATE					
Aroclor 1242	< 1000	8050	9900	81.3%	0.1%

Values Reported in Total ug/kg as received

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: SP5-001106-F

Lab Sample ID: CK34E
LIMS ID: 00-21058
Matrix: Joint Compound

QC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Released: 11/17/00
Data Release Authorized: *CN 11/17/00*
Reported: 11/17/00

Date Sampled: 11/06/00
Date Received: 11/06/00

Date extracted: 11/07/00
Date analyzed: 11/17/00 01:55
Instrument ID: ECD1
Sample Amount: 2.03 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: Yes
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	72.5%
Tetrachlorometaxylene	73.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: SP6-001106-F

Lab Sample ID: CK34F
LIMS ID: 00-21059
Matrix: Joint Compound

QC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Sampled: 11/06/00
Data Release Authorized: *CK 11/17/00*
Reported: 11/17/00 Date Received: 11/06/00

Date extracted: 11/07/00 GPC Cleanup: No
Date analyzed: 11/17/00 02:52 Florisil Cleanup: Yes
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.05 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	68.8%
Tetrachlorometaxylene	72.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: SP7-001106-F

Lab Sample ID: CK34G
LIMS ID: 00-21060
Matrix: Joint Compound

QC Report No: CK34-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Sampled: 11/06/00
Data Release Authorized: *CR 11/17/00*
Reported: 11/17/00 Date Received: 11/06/00

Date extracted: 11/07/00 GPC Cleanup: No
Date analyzed: 11/17/00 03:48 Florisil Cleanup: Yes
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	1,500
11096-82-5	Aroclor 1260	1,600
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	72.5%
Tetrachlorometaxylene	83.0%

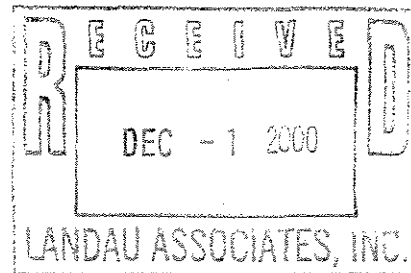
Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 27, 2000



Joan McGilton
The Boeing Company
Energy and Environmental Affairs
P.O. Box 3707, M/S 7A-XA
Seattle, WA 98124-2207

NBF ~~SP14~~
RE: Project: ~~SP14~~ Joint Compound
ARI Job CK70

Dear Joan,

Please find enclosed the original Chain of Custody (COC) record and analytical results for the above referenced project. Fifteen solid samples were received in good condition on November 7, 2000.

Samples were analyzed for PCB Aroclors referencing EPA SW-846 method 8082. Extracts were cleaned up with sulfuric acid and elemental mercury to eliminate chromatographic interferences.

Sample **NBF-SP14-001107-A** required extract dilution and reanalysis. Surrogate spikes were diluted out of the extract.

Quality control analysis results are included for your review. A copy of this report will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Stephanie Lucas
Client Services

SPL/sl
Enclosures

cc: Kris Hendrickson, Landau, Edmonds

Chain of Custody Record & Laboratory Analysis Request

Date: 11/7/00
 Page 1 of 3
 Number of coolers: 1
 Cooler Temp: 2.0



Analytical Resources, Incorporated
 Analytical Chemist and Consultants
 400 Ninth Avenue North
 Seattle, WA 98109-4708
 (206) 621-6490
 (206) 621-7523 (Fax)

ARI Client: Boeing Phone#: 425-865-6454
 Client Contact: Joan McGilligan, MC 7A-WH
 Client Project ID: NBF Concrete Joint Material
 Samplers: Jennifer Parsons, Ernie Carlson

	Sample ID	Date	Time	Matx	No Cont	Lab ID	Analysis Required								Notes/Comments
1	NBF-SP8-001107-B	11/7/00	08:10	S	1		X								
2	NBF-SP9-001107-H		08:20				X								
3	NBF-SP10-001107-D		08:40				X								
4	NBF-SP11-001107-D		09:00				X								
5	NBF-SP12-001107-B1		09:15				X								
6	NBF-SP13-001107-B1		09:30				X								
7	NBF-SP14-001107-A		09:40				X								

PCBs by EPA Method 8082

ARI Project No:	Relinquished by: (Signature) <u>Jennifer Parsons</u>	Relinquished by: (Signature)	Relinquished by: (Signature)
T.A.T. Requested: <u>Standard 2 wk</u>	Printed Name: <u>Jennifer Parsons</u>	Printed Name:	Printed Name:
Comments/Special Instructions:	Company: <u>Boeing</u>	Company:	Company:
① CC Lab Results to Attn:	Date: <u>11/7/00</u> Time: <u>14:33</u>	Date:	Time:
<u>Kris Hendrickson</u>	Received by: (Signature) <u>[Signature]</u>	Received by: (Signature)	Received by: (Signature)
<u>London Assoc. Inc.</u>	Printed Name: <u>Write McDungo</u>	Printed Name:	Printed Name:
② Target PQL = 1.0 mg/kg per Archer	Company: <u>ARI</u>	Company:	Company:
③ Boeing Chargeback	Date: <u>11/7/00</u> Time: <u>1433</u>	Date:	Time:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following Standard Operating Procedures and our Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI releases ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the client.

64-2-590-7KX190-01201-61211

Chain of Custody Record & Laboratory Analysis Request



Analyst: Reso, Inc., State
Analytical Chemist and Consultants
400 Ninth Avenue North
Seattle, WA 98109-4708
(206) 621-6490
(206) 621-7523 (Fax)

Date: 11/7/00
Page 2 of 3
Number of coolers: 1
Cooler Temp: _____

ARI Client: Boeing Phone#: 865-6954

Client Contact: Joan McGilton

Client Project ID: NBF Concrete Joint Material

Samplers: Jennifer Parsons, Ernie Carlson

Analysis Required							Notes/Comments
Sample ID	Date	Time	Matx	No Cont	Lab ID		
1 NBF-SP15-001107-H	11/7/00	10:15	S	1		X	POBs by Method EPA Method 8082
2 NBF-SP16-001107-B		10:45				X	
3 NBF-SP17-001107-M		11:20				X	
4 NBF-SP18-001107-J		11:55				X	
5 NBF-SP19-001107-I		12:20				X	
6 NBF-SP20-001107-G		12:45				X	
7 NBF-SP21-001107-D	✓	13:05	✓	✓		X	

ARI Project No:	Relinquished by: (Signature) <u>Jennifer Parsons</u>	Relinquished by: (Signature)	Relinquished by: (Signature)
T.A.T. Requested: <u>Standard</u> <u>2 wk</u>	Printed Name: <u>Jennifer Parsons</u>	Printed Name:	Printed Name:
Comments/Special Instructions:	Company: <u>Boeing</u>	Company:	Company:
① Lab Results to Attn:	Date: <u>11/7/00</u> Time: <u>14:33</u>	Date:	Time:
Kris Hendrickson Landan Associates Inc. with electronic copy	Received by: (Signature) <u>[Signature]</u>	Received by: (Signature)	Received by: (Signature)
② Target PQL = 1.0 mg/kg per brock	Printed Name: <u>CHRISTOPHER DUNN</u>	Printed Name:	Printed Name:
③ Boeing Chargeback	Company: <u>ARI</u>	Company:	Company:
	Date: <u>11/7/00</u> Time: <u>14:33</u>	Date:	Time:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following Standard Operating Procedures and our Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI releases ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the client.

8-64282-X690-7KX690-61241-61241

Chain of Custody Record & Laboratory Analysis Request

Date: 11/7/00
 Page 3 of 3
 Number of coolers: 1
 Cooler Temp: _____



Analytical Resources, Incorporated
 Analytical Chemist and Consultants
 400 Ninth Avenue North
 Seattle, WA 98109-4708
 (206) 621-6490
 (206) 621-7523 (Fax)

ARI Client: Boeing Phone#: 865-6545

Client Contact: Joan McGilton

Client Project ID: NBF Concrete Joint Material

Samplers: Jennifer Parsons, Ernie Carlson

	Sample ID	Date	Time	Matx	No Cont	Lab ID
1	NBF-SP22-001107-H	11/7/00	13:20	S	1	
2						
3						
4						
5						
6						
7						

Analysis Required							Notes/Comments

ARI Project No:	Relinquished by: (Signature) <u>Jennifer Parsons</u>	Relinquished by: (Signature)	Relinquished by: (Signature)
T.A.T. Requested: <u>Standard</u> <u>2 wk</u>	Printed Name: <u>Jennifer Parsons</u>	Printed Name:	Printed Name:
Comments/Special Instructions:	Company: <u>Boeing</u>	Company:	Company:
① CC <u>Lab Results to ARI</u>	Date: <u>11/7/00</u> Time: <u>14:33</u>	Date: Time:	Date: Time:
<u>Kris Hendricksen</u> <u>London Associates Inc.</u> <u>with electronic copy</u>	Received by: (Signature) <u>[Signature]</u>	Received by: (Signature)	Received by: (Signature)
② <u>Target PQL = 1.0 mg/kg</u> <u>per ARI</u>	Printed Name: <u>Currie McDungo</u>	Printed Name:	Printed Name:
③ <u>Boeing Changeline</u>	Company: <u>ARI</u>	Company:	Company:
	Date: <u>11/7/00</u> Time: <u>14:23</u>	Date: Time:	Date: Time:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following Standard Operating Procedures and our Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI releases ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the client.

064792-4690-784690-61241-112

SOIL AROCLOR SURROGATE SUMMARY

Matrix: Joint Compound

QC Report No: CK70

Project: NBF Concrete Joint Material

8-G4292-X690-7KX690-G1241-G1241

LIMS ID	Lab ID	Client ID	TCMX #	DCBP #	TOT OUT
00-21341MB	111300MB	Method Blank	107%	104%	0
00-21341SB	111300SB	Lab Control	109%	106%	0
00-21341	CK70A	NBF-SP8-001107-B	75.8%	82.0%	0
00-21342	CK70B	NBF-SP9-001107-H	88.8%	97.8%	0
00-21343	CK70C	NBF-SP10-001107-D	90.2%	82.2%	0
00-21344	CK70D	NBF-SP11-001107-D	86.0%	83.5%	0
00-21345	CK70E	NBF-SP12-001107-B1	78.5%	82.8%	0
00-21346	CK70F	NBF-SP13-001107-B1	73.2%	79.2%	0
00-21347	CK70G	NBF-SP14-001107-A	D	D	0
00-21348	CK70H	NBF-SP15-001107-H	74.8%	80.8%	0
00-21349	CK70I	NBF-SP16-001107-B	108%	114%	0
00-21350	CK70J	NBF-SP17-001107-D1	87.2%	90.8%	0
00-21351	CK70K	NBF-SP18-001107-J	87.5%	90.8%	0
00-21351MS	CK70K	NBF-SP18-001107-J-MS	76.8%	87.2%	0
00-21351MSD	CK70K	NBF-SP18-001107-J-MSD	78.0%	86.2%	0
00-21352	CK70L	NBF-SP19-001107-I	78.0%	93.2%	0
00-21353	CK70M	NBF-SP20-001107-G	116%	105%	0
00-21354	CK70N	NBF-SP21-001107-D	81.5%	93.5%	0
00-21355	CK70O	NBF-SP22-001107-H	69.8%	80.8%	0

QC LIMITS

(TCMX) = Tetrachloro-m-xylene (34-128)

(DCBP) = Decachlorobiphenyl (39-132)

Column to be used to flag recovery values

* Values outside of required QC limits

D Surrogate Compound diluted out

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: Method Blank

Lab Sample ID: CK70MB QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21341 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-G1241-G1241
Date Sampled: NA
Data Release Authorized: Date Received: NA
Reported: 11/27/00 *CR 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/16/00 22:38 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	104%
Tetrachlorometaxylene	107%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP8-001107-B

Lab Sample ID: CK70A QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21341 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-G1241-G1241
Date Released: 11/27/00 Date Sampled: 11/07/00
Date Received: 11/07/00
Reported: 11/27/00 *CR 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/21/00 21:31 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.04 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	32,000
11096-82-5	Aroclor 1260	9,900
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	82.0%
Tetrachlorometaxylene	75.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP9-001107-H

Lab Sample ID: CK70B QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21342 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KK690-G1241-G1241
Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00 *OK 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/22/00 08:01 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	7,900
11096-82-5	Aroclor 1260	12,000
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	97.8%
Tetrachlorometaxylene	88.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP8-001107-B

Lab Sample ID: CK70A
LIMS ID: 00-21341
Matrix: Joint Compound

QC Report No: CK70-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-X690-7KK690-G1241-G1241

Data Release Authorized:
Reported: 11/27/00

Date Sampled: 11/07/00
Date Received: 11/07/00

Date extracted: 11/13/00
Date analyzed: 11/21/00 21:31
Instrument ID: ECD1
Sample Amount: 2.04 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	32,000
11096-82-5	Aroclor 1260	9,900
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	82.0%
Tetrachlorometaxylene	75.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP9-001107-H

Lab Sample ID: CK70B QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21342 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-G1241-G1241
Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00 *CR 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/22/00 08:01 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	7,900
11096-82-5	Aroclor 1260	12,000
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	97.8%
Tetrachlorometaxylene	98.8%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP10-001107-D

Lab Sample ID: CK70C
LIMS ID: 00-21343
Matrix: Joint Compound

QC Report No: CK70-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-K690-7KX690-G1241-G1241

Data Release Authorized:
Reported: 11/27/00

Date Sampled: 11/07/00
Date Received: 11/07/00

Date extracted: 11/13/00
Date analyzed: 11/21/00 22:05
Instrument ID: ECD1
Sample Amount: 2.02 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	1,400
11096-82-5	Aroclor 1260	990 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	82.2%
Tetrachlorometaxylene	90.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP11-001107-D

Lab Sample ID: CK70D QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21344 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-G1241-G1241
Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00 *CR 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/22/00 01:24 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	960 J
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	83.5%
Tetrachlorometaxylene	86.0%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP12-001107-B1--

Lab Sample ID: CK70E QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21345 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KK690-G1241-G1241
Date Released: 11/07/00 Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00 *CR 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/22/00 04:09 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	540 J
11096-82-5	Aroclor 1260	990 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	82.8%
Tetrachlorometaxylene	78.5%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP13-001107-B1

Lab Sample ID: CK70F QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21346 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X590-7KX690-G1241-G1241
Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00 *CR 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/22/00 09:08 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.04 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	660 J
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	79.2%
Tetrachlorometaxylene	73.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP14-001107-A

Lab Sample ID: CK70G
LIMS ID: 00-21347
Matrix: Joint Compound

QC Report No: CK70-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-X690-7KK690-G1241-G1241

Data Release Authorized:
Reported: 11/27/00

Date Sampled: 11/07/00
Date Received: 11/07/00

CR 11/27/00

Date extracted: 11/13/00
Date analyzed: 11/22/00 17:48
Instrument ID: ECD1
Sample Amount: 2.04 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1000

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980,000 U
53469-21-9	Aroclor 1242	980,000 U
12672-29-6	Aroclor 1248	980,000 U
11097-69-1	Aroclor 1254	23,000,000
11096-82-5	Aroclor 1260	980,000 U
11104-28-2	Aroclor 1221	2,000,000 U
11141-16-5	Aroclor 1232	980,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP15-001107-H

Lab Sample ID: CK70H QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21348 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-G1241-G1241
Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00 *OK 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/22/00 10:14 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,700
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	80.8%
Tetrachlorometaxylene	74.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP16-001107-B

Lab Sample ID: CK701 QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21349 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-G1241-G1241
Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00 *CR 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/22/00 11:20 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	1,100
11096-82-5	Aroclor 1260	990 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	114%
Tetrachlorometaxylene	108%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCE by GC/ECD



Sample No: NBF-SP17-001107-D1

Lab Sample ID: CK70J QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21350 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-G1241-G1241
Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00 *OK 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/22/00 01:57 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.03 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	2,700
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	90.8%
Tetrachlorometaxylene	87.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP44-001109-B1

MATRIX SPIKE

Lab Sample ID: CK85JMS

QC Report No: CK85-Boeing Corporate SHEA

LIMS ID: 00-21476

Project: NBF Concrete Joint Material

Matrix: Solid

Date Sampled: 11/09/00

Data Release Authorized:

Date Received: 11/09/00

Reported: 11/28/00

OK 11/28/00

Date extracted: 11/16/00

GPC Cleanup: No

Date analyzed: 11/25/00 22:58

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.00 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	96.2%
Tetrachlorometaxylene	101%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP44-001109-B1

Lab Sample ID: CK85J
LIMS ID: 00-21476
Matrix: Solid

QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Data Release Authorized:
Reported: 11/28/00 *OK 11/28/00*

Date Sampled: 11/09/00
Date Received: 11/09/00

Date extracted: 11/16/00
Date analyzed: 11/25/00 22:25
Instrument ID: ECD1
Sample Amount: 2.03 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	77.5%
Tetrachlorometaxylene	79.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP43-001109-C

Lab Sample ID: CK85I
LIMS ID: 00-21475
Matrix: Solid

QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Sampled: 11/09/00
Date Received: 11/09/00
Data Release Authorized: *CK 11/20/00*
Reported: 11/28/00

Date extracted: 11/16/00
Date analyzed: 11/25/00 16:20
Instrument ID: ECD1
Sample Amount: 2.01 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	97.2%
Tetrachlorometaxylene	105%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP42-001109-E

Lab Sample ID: CK85H

QC Report No: CK85-Boeing Corporate SHEA

LIMS ID: 00-21474

Project: NBF Concrete Joint Material

Matrix: Solid

Date Sampled: 11/09/00

Data Release Authorized:

Date Received: 11/09/00

Reported: 11/28/00

Date extracted: 11/16/00

GPC Cleanup: No

Date analyzed: 11/25/00 15:47

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.01 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	550 J
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	108%
Tetrachlorometaxylene	120%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP41-001109-E

Lab Sample ID: CK85G

QC Report No: CK85-Boeing Corporate SHEA

LIMS ID: 00-21473

Project: NBF Concrete Joint Material

Matrix: Solid

Date Sampled: 11/09/00

Data Release Authorized:

Date Received: 11/09/00

Reported: 11/28/00

CR 11/28/00

Date extracted: 11/16/00

GPC Cleanup: No

Date analyzed: 11/25/00 15:14

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.03 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	530 J
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	109%
Tetrachlorometaxylene	127%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP40-001109-B2

Lab Sample ID: CK85F
LIMS ID: 00-21472
Matrix: Solid

QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Released: 11/09/00
Date Received: 11/09/00
Reported: 11/28/00 *CR 11/28/00*

Date extracted: 11/16/00
Date analyzed: 11/27/00 15:37
Instrument ID: ECD1
Sample Amount: 2.00 g-as-rec
Final Ext Vol: 20 mL
GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	82.8%
Tetrachlorometaxylene	79.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP38-001109-A

Lab Sample ID: CK85D
LIMS ID: 00-21470
Matrix: Solid

QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Released: 11/28/00
Data Release Authorized: *OK 11/28/00*
Reported: 11/28/00

Date Sampled: 11/09/00
Date Received: 11/09/00

Date extracted: 11/16/00
Date analyzed: 11/26/00 09:29
Instrument ID: ECD1
Sample Amount: 2.01 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,400 Y
11097-69-1	Aroclor 1254	2,300 Y
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	79.0%
Tetrachlorometaxylene	88.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
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Sample No: NBF-SP37-001109-F

Lab Sample ID: CK85C
LIMS ID: 00-21469
Matrix: Solid

QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Released: 11/28/00
Data Release Authorized: *VR 11/28/00*
Reported: 11/28/00

Date Sampled: 11/09/00
Date Received: 11/09/00

Date extracted: 11/16/00
Date analyzed: 11/26/00 05:03
Instrument ID: ECD1
Sample Amount: 2.04 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	1,100 Y
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	83.0%
Tetrachlorometaxylene	105%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP39-001109-C1

Lab Sample ID: CK85E
LIMS ID: 00-21471
Matrix: Solid

QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Released: 11/28/00 *CR 11/28/00*
Data Release Authorized: *CR 11/28/00*
Reported: 11/28/00

Date Sampled: 11/09/00
Date Received: 11/09/00

Date extracted: 11/16/00
Date analyzed: 11/27/00 14:42
Instrument ID: ECD1
Sample Amount: 2.01 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:20

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	20,000 U
53469-21-9	Aroclor 1242	20,000 U
12672-29-6	Aroclor 1248	40,000 Y
11097-69-1	Aroclor 1254	270,000 Y
11096-82-5	Aroclor 1260	20,000 U
11104-28-2	Aroclor 1221	40,000 U
11141-16-5	Aroclor 1232	20,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP36-001109-F

Lab Sample ID: CK85B
LIMS ID: 00-21468
Matrix: Solid

QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Sampled: 11/09/00
Data Release Authorized: *OK 11/29/00*
Reported: 11/28/00
Date Received: 11/09/00

Date extracted: 11/16/00
Date analyzed: 11/27/00 15:59
Instrument ID: ECD1
Sample Amount: 2.01 g-as-rec
Final Ext Vol: 20 mL
GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	88.2%
Tetrachlorometaxylene	74.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD



Sample No: NBF-SP35-001109-F

Lab Sample ID: CK85A

QC Report No: CK85-Boeing Corporate SHEA

LIMS ID: 00-21467

Project: NBF Concrete Joint Material

Matrix: Solid

Date Sampled: 11/09/00

Data Release Authorized:

Date Received: 11/09/00

Reported: 11/28/00

Date extracted: 11/16/00

GPC Cleanup: No

Date analyzed: 11/26/00 04:30

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.03 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	1,200
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	79.2%
Tetrachlorometaxylene	90.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

SOIL AROCLOR SURROGATE SUMMARY

Matrix: Solid

QC Report No: CK85

Project: NBF Concrete Joint Material

LIMS ID	Lab ID	Client ID	TCMX #	DCBP #	TOT OUT
00-21467MB	111600MB	Method Blank	116%	108%	0
00-21467SB	111600SB	Lab Control	117%	109%	0
00-21467	CK85A	NBF-SP35-001109-F	90.5%	79.2%	0
00-21468	CK85B	NBF-SP36-001109-F	74.5%	88.2%	0
00-21469	CK85C	NBF-SP37-001109-F	105%	83.0%	0
00-21470	CK85D	NBF-SP38-001109-A	88.2%	79.0%	0
00-21471	CK85E	NBF-SP39-001109-C1	D	D	0
00-21472	CK85F	NBF-SP40-001109-B2	79.8%	82.8%	0
00-21473	CK85G	NBF-SP41-001109-E	127%	109%	0
00-21474	CK85H	NBF-SP42-001109-E	120%	108%	0
00-21475	CK85I	NBF-SP43-001109-C	105%	97.2%	0
00-21476	CK85J	NBF-SP44-001109-B1	79.5%	77.5%	0
00-21476MS	CK85J	NBF-SP44-001109-B1-MS	101%	96.2%	0
00-21476MSD	CK85J	NBF-SP44-001109-B1-MSD	91.2%	93.8%	0
00-21477	CK85K	NBF-SP45-001109-A	NR *	109%	1
00-21478	CK85L	NBF-SP46-001109-H	91.5%	88.5%	0
00-21479	CK85M	NBF-SP47-001109-H	85.5%	80.5%	0
00-21480	CK85N	NBF-SP48-001109-H	94.8%	81.5%	0

QC LIMITS

(TCMX) = Tetrachloro-m-xylene (34-128)

(DCBP) = Decachlorobiphenyl (39-132)

Column to be used to flag recovery values

* Values outside of required QC limits

D Surrogate Compound diluted out

CKS 00-21467 to 00-21480

5.5

Chain of Custody Record & Laboratory Analysis Request



Analytical Resources, Incorporated
Analytical Chemists and Consultants
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-7523 (fax)

Page 1 of 1

Turn Around Requested: Standard 2wk

Report to: <u>John McGilton</u>		Proj Name: <u>NBF Cocaine Point Material</u>				Analyses Requested										Notes/Comments	
Company: <u>Boeing</u>		Proj Number:				<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> PCD by EPA Method 8210 </div>											
Address: <u>PO Box 3107 Seattle, WA 98124</u>		Sampler: <u>Ernie Carben</u>															
MC #A-WH		Jennifer Parsons															
Phone: <u>425-865-0454</u>		Shipping Method:															
Fax:		AirBill:															
Sample ID		Sample Date	Sample Time	Sample Matrix	No Containers												
<u>NBF-SP35-001109-F</u>	<u>11/9/00</u>	<u>7:25</u>	<u>S</u>	<u>1</u>	<u>X</u>											MS/MSD	
<u>NBF-SP36-001109-F</u>	<u>1</u>	<u>7:45</u>	<u>1</u>	<u>1</u>	<u>X</u>												
<u>NBF-SP37-001109-F</u>		<u>8:05</u>			<u>X</u>												
<u>NBF-SP38-001109-A</u>		<u>8:20</u>			<u>X</u>												
<u>NBF-SP39-001109-C1</u>		<u>8:40</u>			<u>X</u>												
<u>NBF-SP40-001109-B2</u>		<u>9:00</u>			<u>X</u>												
<u>NBF-SP41-001109-E</u>		<u>9:20</u>			<u>X</u>												
<u>NBF-SP42-001109-E</u>		<u>9:30</u>			<u>X</u>												
<u>NBF-SP43-001109-C</u>		<u>9:35</u>		<u>✓</u>	<u>X</u>												
<u>NBF-SP44-001109-B1</u>		<u>10:10</u>		<u>3</u>	<u>X</u>												
<u>NBF-SP45-001109-A</u>		<u>10:35</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP46-001109-H</u>		<u>10:55</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP47-001109-H</u>		<u>11:12</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP48-001109-H</u>	<u>✓</u>	<u>11:25</u>	<u>✓</u>	<u>1</u>	<u>X</u>												

Relinquished: (Signature) <u>Jennifer Parsons</u>		Relinquished: (Signature)		Relinquished: (Signature)		Special Instructions/Notes <u>DCC</u> <u>Lab Results to Attn:</u> <u>Kris Hendrickson</u> <u>London Assoc. Inc</u> <u>with electronic copy</u> <u>Target PQL = 1.0mg</u> <u>per Procter</u> <u>Boeing Charge</u> <u>8-614292-X690-71</u> <u>-61241-</u>	
Printed name: <u>Jennifer Parsons</u>		Printed name:		Printed name:			
Company: <u>Boeing</u>		Company:		Company:			
Date: <u>11/9/00</u>	Time: <u>12:45</u>	Date:	Time:	Date:	Time:		
Received by: <u>Elysebeth Joshi</u>		Received by:		Received by:		Number of Coolers: <u>1</u> Cooler Temp(s): COC Seals Intact? Bottles Intact?	
Printed name: <u>ELYSEBETH JOSHI</u>		Printed name:		Printed name:			
Company: <u>ARI</u>		Company:		Company:			
Date: <u>11/9/00</u>	Time: <u>1245</u>	Date:	Time:	Date:	Time:		



Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 29, 2000

Joan McGilton
The Boeing Company
Energy and Environmental Affairs
P.O. Box 3707, M/S 7A-XA
Seattle, WA 98124-2207

RE: Project: NBF Joint Compound
ARI Job CK85

Dear Joan,

Please find enclosed the original Chain of Custody (COC) record and analytical results for the above referenced project. Fourteen solid samples were received in good condition on November 9, 2000.

Samples were analyzed for PCB Aroclors referencing EPA SW-846 method 8082. Extracts were cleaned up with sulfuric acid and elemental mercury to eliminate chromatographic interferences.

Samples NBF-SP41-001109-E and NBF-SP45-001109-A required extract dilution and reanalysis. Analysis of NBF-SP45-001109-A for showed a TCMX surrogate recovery outside QC limits. As the DCBP recovery was in control, no corrective action was required. Surrogate spikes were diluted out of the extract for sample NBF-SP39-001109-C1.

Quality control analysis results are included for your review. A copy of this report will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.


Stephanie Lucas
Client Services

SPL/sl
Enclosures

cc: Kris Hendrickson, Landau, Edmonds
Stacy Fischer, Landau, Edmonds

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Lab Sample ID: CK71D
LIMS ID: 00-21360
Matrix: Joint Compound

Sample No: NBF-SP26-001108-B2
QC Report No: CK71-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-X690-7KK690-61241-61241
Date Received: 11/08/00

Data Release Authorized:
Reported: 11/27/00 *CR 11/27/00*

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY
Date extracted: 11/15/00

CONSTITUENT	SAMPLE VALUE	SPIKE FOUND	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE					
Aroclor 1242	< 990	8080	10000	80.8%	
MATRIX SPIKE DUPLICATE					
Aroclor 1242	< 990	7340	9800	74.9%	7.6%

Values Reported in Total ug/kg as received

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECDLab Sample ID: CK71
LIMS ID: 00-21357
Matrix: Joint CompoundQC Report No: CK71-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-X690-7KX690-61241-61241Data Release Authorized:
Reported: 11/27/00

CK 11/27/00

LABORATORY CONTROL SAMPLE SPIKE RECOVERY
Date extracted: 11/15/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
LABORATORY CONTROL SAMPLE			
Aroclor 1242	10100	10000	101%

Aroclor Surrogate Recoveries

Decachlorobiphenyl	106%
Tetrachlorometaxylene	116%

Values Reported in Total ug/kg as received

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: Method Blank

Lab Sample ID: CK71MB QC Report No: CK71-Boeing Corporate SHEA
LIMS ID: 00-21357 Project: NEF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-61241-61241
Date Released: NA
Data Release Authorized: Date Received: NA
Reported: 11/27/00 *CK 11/27/00*

Date extracted: 11/15/00 GPC Cleanup: No
Date analyzed: 11/22/00 14:39 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	112%
Tetrachlorometaxylene	121%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP34-001108-J

Lab Sample ID: CK71L
LIMS ID: 00-21368
Matrix: Joint Compound

QC Report No: CK71-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-X690-7KX690-61241-61241

Data Release Authorized:
Reported: 11/27/00

Date Sampled: 11/08/00
Date Received: 11/08/00

Date extracted: 11/15/00
Date analyzed: 11/24/00 21:33
Instrument ID: ECD1
Sample Amount: 2.00 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,100
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	91.8%
Tetrachlorometaxylene	90.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP33-001108-G

Lab Sample ID: CK71K QC Report No: CK71-Boeing Corporate SHEA
LIMS ID: 00-21367 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-61241-61241
Date Released Authorized: Date Sampled: 11/08/00
Reported: 11/27/00 *CR 11/27/00* Date Received: 11/08/00

Date extracted: 11/15/00 GPC Cleanup: No
Date analyzed: 11/25/00 00:52 Florisil Cleanup: No
Instrument ID: BCD1 Acid Cleanup: Yes
Sample Amount: 2.04 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1000

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980,000 U
53469-21-9	Aroclor 1242	980,000 U
12672-29-6	Aroclor 1248	980,000 U
11097-69-1	Aroclor 1254	31,000,000
11096-82-5	Aroclor 1260	19,000,000
11104-28-2	Aroclor 1221	2,000,000 U
11141-16-5	Aroclor 1232	980,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
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Sample No: NBF-SP32-001108-B

Lab Sample ID: CK71J QC Report No: CK71-Boeing Corporate SHEA
LIMS ID: 00-21366 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-61241-61241
Date Sampled: 11/08/00
Data Release Authorized: Date Received: 11/08/00
Reported: 11/27/00 *CR 11/27/00*

Date extracted: 11/15/00 GPC Cleanup: No
Date analyzed: 11/25/00 08:36 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

<u>CAS Number</u>	<u>Analyte</u>	<u>Value</u>
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	90.8%
Tetrachlorometaxylene	95.2%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP31-001108-C

Lab Sample ID: CK711 QC Report No: CK71-Boeing Corporate SHEA
LIMS ID: 00-21365 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KK690-61241-61241
Date Sampled: 11/08/00
Data Release Authorized: Date Received: 11/08/00
Reported: 11/27/00 *CE 11/27/00*

Date extracted: 11/15/00 GPC Cleanup: No
Date analyzed: 11/24/00 20:26 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.03 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	1,300
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	91.2%
Tetrachlorometaxylene	102%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED 

Sample No: NBF-SP30-001108-G

Lab Sample ID: CK71H QC Report No: CK71-Boeing Corporate SHEA
LIMS ID: 00-21364 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-61241-61241
Date Released: 11/08/00
Data Release Authorized: Date Received: 11/08/00
Reported: 11/27/00 *CK 11/27/00*

Date extracted: 11/15/00 GPC Cleanup: No
Date analyzed: 11/24/00 20:59 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1000

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990,000 U
53469-21-9	Aroclor 1242	990,000 U
12672-29-6	Aroclor 1248	990,000 U
11097-69-1	Aroclor 1254	26,000,000
11096-82-5	Aroclor 1260	9,300,000
11104-28-2	Aroclor 1221	2,000,000 U
11141-16-5	Aroclor 1232	990,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP29-001108-D

Lab Sample ID: CK71G QC Report No: CK71-Boeing Corporate SHEA
LIMS ID: 00-21363 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-61241-61241
Date Released: 11/08/00
Data Release Authorized: Date Received: 11/08/00
Reported: 11/27/00 *CR 11/27/00*

Date extracted: 11/15/00 GPC Cleanup: No
Date analyzed: 11/25/00 09:42 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	1,100
11096-82-5	Aroclor 1260	990 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	92.8%
Tetrachlorometaxylene	87.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP28-001108-H

Lab Sample ID: CK71F QC Report No: CK71-Boeing Corporate SHEA
LIMS ID: 00-21362 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-61241-61241
Date Sampled: 11/08/00
Data Release Authorized: Date Received: 11/08/00
Reported: 11/27/00

Date extracted: 11/15/00 GPC Cleanup: No
Date analyzed: 11/25/00 07:30 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	540 J
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	88.2%
Tetrachlorometaxylene	73.0%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP27-001108-B2

Lab Sample ID: CK71E
LIMS ID: 00-21361
Matrix: Joint Compound

QC Report No: CK71-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-X690-7KX690-61241-61241

Data Release Authorized:
Reported: 11/27/00

Date Sampled: 11/08/00
Date Received: 11/08/00

OL 11/27/00

Date extracted: 11/15/00
Date analyzed: 11/25/00 04:11
Instrument ID: ECD1
Sample Amount: 2.04 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	82.2%
Tetrachlorometaxylene	74.0%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP26-001108-B2

SPIKE DUPLICATE

Lab Sample ID: CK71DMSD

QC Report No: CK71-Boeing Corporate SHEA

LIMS ID: 00-21360

Project: NBF Concrete Joint Material

Matrix: Joint Compound

8-G4292-X690-7KKX690-61241-61241

Date Sampled: 11/08/00

Data Release Authorized:

Date Received: 11/08/00

Reported: 11/27/00

Date extracted: 11/15/00

GPC Cleanup: No

Date analyzed: 11/25/00 03:38

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.04 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	83.0%
Tetrachlorometaxylene	79.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP26-001108-B2

MATRIX SPIKE

Lab Sample ID: CK71DMS QC Report No: CK71-Boeing Corporate SHEA
LIMS ID: 00-21360 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-61241-61241
Date Sampled: 11/08/00
Data Release Authorized: Date Received: 11/08/00
Reported: 11/27/00 *CR 11/27/00*

Date extracted: 11/15/00 GPC Cleanup: No
Date analyzed: 11/25/00 03:04 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	90.0%
Tetrachlorometaxylene	86.5%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP26-001108-B2

Lab Sample ID: CK71D
LIMS ID: 00-21360
Matrix: Joint Compound

QC Report No: CK71-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-X590-7KX690-61241-61241

Data Release Authorized:
Reported: 11/27/00

Date Sampled: 11/08/00
Date Received: 11/08/00

Date extracted: 11/15/00
Date analyzed: 11/25/00 02:31
Instrument ID: ECD1
Sample Amount: 2.03 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	86.0%
Tetrachlorometaxylene	81.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP25-001108-B

Lab Sample ID: CK71C QC Report No: CK71-Boeing Corporate SHEA
LIMS ID: 00-21359 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-61241-61241
Date Released Authorized: Date Sampled: 11/08/00
Reported: 11/27/00 Date Received: 11/08/00

Date extracted: 11/15/00 GPC Cleanup: No
Date analyzed: 11/25/00 01:25 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	4,300
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	74.2%
Tetrachlorometaxylene	69.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP24-001108-B1

Lab Sample ID: CK71B
LIMS ID: 00-21358
Matrix: Joint Compound
Data Release Authorized:
Reported: 11/27/00

QC Report No: CK71-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-X690-7KK690-61241-61241
Date Sampled: 11/08/00
Date Received: 11/08/00

CR 11/27/00

Date extracted: 11/15/00
Date analyzed: 11/24/00 10:19
Instrument ID: ECD1
Sample Amount: 2.02 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	1,200
11096-82-5	Aroclor 1260	990 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	86.2%
Tetrachlorometaxylene	78.5%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.

E Indicates a value above the linear range of the detector.
Dilution Required

S Indicates no value reported due to saturation of the detector.

D Indicates the surrogate was diluted out.

U Indicates compound was analyzed for, but not detected at the given detection limit.

B Found in associated method blank

NA Indicates compound was not analyzed.

NR Indicates no recovery due to interferences.

NV Indicates no value reportable - see additional analyses.

Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP23-001108-I

Lab Sample ID: CK71A QC Report No: CK71-Boeing Corporate SHEA
LIMS ID: 00-21357 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-61241-61241
Date Sampled: 11/08/00
Data Release Authorized: Date Received: 11/08/00
Reported: 11/27/00 *CR 11/27/00*

Date extracted: 11/15/00 GPC Cleanup: No
Date analyzed: 11/24/00 09:12 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	1,200
11096-82-5	Aroclor 1260	990 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	101%
Tetrachlorometaxylene	93.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

SOIL AROCLOR SURROGATE SUMMARY

Matrix: Joint Compound

QC Report No: CK71

Project: NBF Concrete Joint Material

8-G4292-X690-7KX690-61241-61241

LIMS ID	Lab ID	Client ID	TCMX #	DCBP #	TOT OUT
00-21357MB	111500MB	Method Blank	121%	112%	0
00-21357SB	111500SB	Lab Control	116%	106%	0
00-21357	CK71A	NBF-SP23-001108-I	93.2%	101%	0
00-21358	CK71B	NBF-SP24-001108-B1	78.5%	86.2%	0
00-21359	CK71C	NBF-SP25-001108-B	69.2%	74.2%	0
00-21360	CK71D	NBF-SP26-001108-B2	81.8%	86.0%	0
00-21360MS	CK71D	NBF-SP26-001108-B2-MS	86.5%	90.0%	0
00-21360MSD	CK71D	NBF-SP26-001108-B2-MSD	79.2%	83.0%	0
00-21361	CK71E	NBF-SP27-001108-B2	74.0%	82.2%	0
00-21362	CK71F	NBF-SP28-001108-H	73.0%	88.2%	0
00-21363	CK71G	NBF-SP29-001108-D	87.2%	92.8%	0
00-21364	CK71H	NBF-SP30-001108-G	D	D	0
00-21365	CK71I	NBF-SP31-001108-C	102%	91.2%	0
00-21366	CK71J	NBF-SP32-001108-B	95.2%	90.8%	0
00-21367	CK71K	NBF-SP33-001108-G	D	D	0
00-21368	CK71L	NBF-SP34-001108-J	90.8%	91.8%	0

QC LIMITS

(TCMX) = Tetrachloro-m-xylene (34-128)
(DCBP) = Decachlorobiphenyl (39-132)

Column to be used to flag recovery values

* Values outside of required QC limits

D Surrogate Compound diluted out

00-21357 to 00-21308 CL 71
Chain of Custody Record & Laboratory Analysis Request



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Analytical Chemists and Consultants
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Seattle, WA 98109-4708
206-621-6490 206-621-7523 (fax)

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1.0

Turn Around Requested: Standard Zwk

Report to: <u>Jam McGilton</u>		Proj Name: <u>NBF Concrete Joint</u>				Analyses Requested										Notes/Comments	
Company: <u>Boeing</u>		Proj Number: <u>Material</u>															
Address: <u>P.O. Box 3707 Seattle, WA 98124</u>		Sampler: <u>Jennifer Parsons</u>															
<u>MC 7A-WH</u>		<u>Ernie Carlson</u>															
Phone: <u>425-865-4454</u>		Shipping Method:															
Fax:		AirBill:															
Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers													
<u>NBF-SP23-001108-I</u>	<u>11/8/00</u>	<u>8:00</u>	<u>S</u>	<u>1</u>	<u>X</u>												
<u>NBF-SP24-001108-B1</u>		<u>8:50</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP25-001108-B</u>		<u>9:15</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP26-001108-B2</u>		<u>9:30</u>		<u>3</u>	<u>X</u>												
<u>NBF-SP27-001108-B2</u>		<u>10:10</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP28-001108-H</u>		<u>10:45</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP29-001108-D</u>		<u>11:15</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP30-001108-G</u>		<u>11:38</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP31-001108-C</u>		<u>12:05</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP32-001108-B</u>		<u>13:05</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP33-001108-G</u>		<u>13:55</u>		<u>1</u>	<u>X</u>												
<u>NBF-SP34-001108-J</u>	<u>✓</u>	<u>14:35</u>	<u>✓</u>	<u>1</u>	<u>X</u>												

PCBs by EPA Method 8082

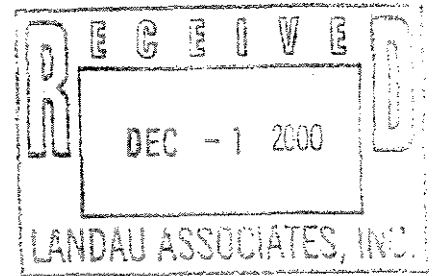
MS/MSD

Relinquished: (Signature) <u>Jennifer Parsons</u>		Relinquished: (Signature)		Relinquished: (Signature)		Special Instructions/Notes <u>Doc</u> <u>Lab Results to Attn:</u> <u>Kris Hendrickson</u> <u>Landau Associates Inc.</u> <u>with electronic copy</u> <u>Target PAL = 1.0mg/Kg</u> <u>per Analyzer</u> <u>Boeing Chargeback</u> <u>8-G 4292-XL90-7KXL90-6, 3</u> <u>6/24/01</u>	
Printed name: <u>Jennifer Parsons</u>		Printed name:		Printed name:			
Company: <u>Boeing</u>		Company:		Company:			
Date: <u>11/8/00</u>	Time: <u>15:16</u>	Date:	Time:	Date:	Time:		
Received by: <u>Elysebeth J. Smith</u>		Received by:		Received by:		Number of Coolers: <u>1</u> Cooler Temp(s): COC Seals Intact? Bottles Intact?	
Printed name: <u>ELYSEBETH J. SMITH</u>		Printed name:		Printed name:			
Company: <u>ARI</u>		Company:		Company:			
Date: <u>11/8/00</u>	Time: <u>1525</u>	Date:	Time:	Date:	Time:		



Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 27, 2000



Joan McGilton
The Boeing Company
Energy and Environmental Affairs
P.O. Box 3707, M/S 7A-XA
Seattle, WA 98124-2207

RE: Project: NBF Joint Compound
ARI Job CK71

Dear Joan,

Please find enclosed the original Chain of Custody (COC) record and analytical results for the above referenced project. Twelve solid samples were received in good condition on November 8, 2000.

Samples were analyzed for PCB Aroclors referencing EPA SW-846 method 8082. Extracts were cleaned up with sulfuric acid and elemental mercury to eliminate chromatographic interferences.

Samples **NBF-SP30-001108-G** and **NBF-SP33-001108-G** required extract dilution and reanalysis. Surrogate spikes were diluted out of the extract.

Quality control analysis results are included for your review. A copy of this report will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Stephanie Lucas
Client Services

SPL/sl
Enclosures

cc: Kris Hendrickson, Landau, Edmonds

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Lab Sample ID: CK70K
LIMS ID: 00-21351
Matrix: Joint Compound

Sample No: NBF-SP18-001107-J
QC Report No: CK70-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-X690-7KX690-G1241-G1241
Date Received: 11/07/00

Data Release Authorized:
Reported: 11/27/00 *OK 11/27/00*

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY
Date extracted: 11/13/00

CONSTITUENT	SAMPLE VALUE	SPIKE FOUND	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE					
Aroclor 1242	< 990	7280	9950	73.2%	
MATRIX SPIKE DUPLICATE					
Aroclor 1242	< 990	7340	9950	73.8%	0.9%

Values Reported in Total ug/kg as received

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECDLab Sample ID: CK70
LIMS ID: 00-21341
Matrix: Joint CompoundQC Report No: CK70-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-X690-7KX690-G1241-G1241

Data Release Authorized:

Reported: 11/27/00

CK 11/27/00

LABORATORY CONTROL SAMPLE SPIKE RECOVERY

Date extracted: 11/13/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
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LABORATORY CONTROL SAMPLE

Aroclor 1242	9710	10000	97.1%
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Aroclor Surrogate Recoveries

Decachlorobiphenyl	106%
Tetrachlorometaxylene	109%

Values Reported in Total ug/kg as received

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP22-001107-H

Lab Sample ID: CK700 QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21355 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KK690-G1241-G1241
Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00 *CK-11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/22/00 16:52 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	7,700
11096-82-5	Aroclor 1260	3,900
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	80.8%
Tetrachlorometaxylene	69.8%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP21-001107-D

Lab Sample ID: CK70N QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21354 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-G1241-G1241
Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/22/00 15:46 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	770 J
11096-82-5	Aroclor 1260	990 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	93.5%
Tetrachlorometaxylene	81.5%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP20-001107-G

Lab Sample ID: CK70M QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21353 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-G1241-G1241
Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00 *OK 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/21/00 20:58 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.04 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	6,100
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	105%
Tetrachlorometaxylene	116%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP19-001107-I

Lab Sample ID: CK70L QC Report No: CK70-Boeing Corporate SHEA
LIMS ID: 00-21352 Project: NBF Concrete Joint Material
Matrix: Joint Compound 8-G4292-X690-7KX690-G1241-G1241
Date Sampled: 11/07/00
Data Release Authorized: Date Received: 11/07/00
Reported: 11/27/00 *OK 11/27/00*

Date extracted: 11/13/00 GPC Cleanup: No
Date analyzed: 11/22/00 03:36 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

<u>CAS Number</u>	<u>Analyte</u>	<u>Value</u>
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	990 U
11096-82-5	Aroclor 1260	990 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	93.2%
Tetrachlorometaxylene	78.0%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP18-001107-J

SPIKE DUPLICATE

Lab Sample ID: CK70KMSD

QC Report No: CK70-Boeing Corporate SHEA

LIMS ID: 00-21351

Project: NBF Concrete Joint Material

Matrix: Joint Compound

8-G4292-X690-7KX690-G1241-G1241

Date Sampled: 11/07/00

Data Release Authorized:

Date Received: 11/07/00

Reported: 11/27/00

CP 11/27/00

Date extracted: 11/13/00

GPC Cleanup: No

Date analyzed: 11/22/00 03:03

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.01 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	86.2%
Tetrachlorometaxylene	78.0%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP18-001107-J

MATRIX SPIKE

Lab Sample ID: CK70KMS

QC Report No: CK70-Boeing Corporate SHEA

LIMS ID: 00-21351

Project: NBF Concrete Joint Material

Matrix: Joint Compound

8-G4292-X690-7KX690-G1241-G1241

Data Release Authorized:

Date Sampled: 11/07/00

Reported: 11/27/00

Date Received: 11/07/00

Date extracted: 11/13/00

GPC Cleanup: No

Date analyzed: 11/22/00 02:30

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.01 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	87.2%
Tetrachlorometaxylene	76.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SF18-001107-J

Lab Sample ID: CK70K
LIMS ID: 00-21351
Matrix: Joint Compound

QC Report No: CK70-Boeing Corporate SHEA
Project: NBF Concrete Joint Material
8-G4292-X690-7KX690-G1241-G1241

Data Release Authorized:
Reported: 11/27/00

Date Sampled: 11/07/00
Date Received: 11/07/00

CR 11/27/00

Date extracted: 11/13/00
Date analyzed: 11/21/00 20:25
Instrument ID: ECD1
Sample Amount: 2.02 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	990 U
11096-82-5	Aroclor 1260	990 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	90.8%
Tetrachlorometaxylene	87.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP44-001109-B1

SPIKE DUPLICATE

Lab Sample ID: CK85JMSD

QC Report No: CK85-Boeing Corporate SHEA

LIMS ID: 00-21476

Project: NBF Concrete Joint Material

Matrix: Solid

Date Sampled: 11/09/00

Data Release Authorized:

Date Received: 11/09/00

Reported: 11/28/00

Date extracted: 11/16/00

GPC Cleanup: No

Date analyzed: 11/25/00 23:31

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.03 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	93.8%
Tetrachlorometaxylene	91.2%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.

E Indicates a value above the linear range of the detector.
Dilution Required

S Indicates no value reported due to saturation of the detector.

D Indicates the surrogate was diluted out.

U Indicates compound was analyzed for, but not detected at the given detection limit.

B Found in associated method blank

NA Indicates compound was not analyzed.

NR Indicates no recovery due to interferences.

NV Indicates no value reportable - see additional analyses.

Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP45-001109-A

Lab Sample ID: CK85K.

QC Report No: CK85-Boeing Corporate SHEA

LIMS ID: 00-21477

Project: NBF Concrete Joint Material

Matrix: Solid

Date Released: 11/28/00 Date Sampled: 11/09/00

Data Release Authorized: CR 11/28/00 Date Received: 11/09/00

Reported: 11/28/00

Date extracted: 11/16/00

GPC Cleanup: No

Date analyzed: 11/27/00 17:15

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.00 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:5

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	5,000 U
53469-21-9	Aroclor 1242	5,000 U
12672-29-6	Aroclor 1248	5,000 U
11097-69-1	Aroclor 1254	5,000 U
11096-82-5	Aroclor 1260	8,500 Y
11104-28-2	Aroclor 1221	10,000 U
11141-16-5	Aroclor 1232	5,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	109%
Tetrachlorometaxylene	NR

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED 

Sample No: NBF-SP46-001109-H

Lab Sample ID: CK85L
LIMS ID: 00-21478
Matrix: Solid

QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Released: 11/28/00
Date Sampled: 11/09/00
Date Received: 11/09/00

Date extracted: 11/16/00
Date analyzed: 11/26/00 02:50
Instrument ID: ECD1
Sample Amount: 2.03 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

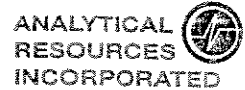
PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	88.5%
Tetrachlorometaxylene	91.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required.
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP47-001109-H

Lab Sample ID: CK85M
LIMS ID: 00-21479
Matrix: Solid

QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Released: 11/28/00
Data Release Authorized: *OK 11/28/00*
Reported: 11/28/00

Date Sampled: 11/09/00
Date Received: 11/09/00

Date extracted: 11/16/00
Date analyzed: 11/26/00 03:24
Instrument ID: ECD1
Sample Amount: 2.03 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	2,200
11096-82-5	Aroclor 1260	1,700
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	80.5%
Tetrachlorometaxylene	85.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP48-001109-H

Lab Sample ID: CK85N
LIMS ID: 00-21480
Matrix: Solid

QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Released Authorized: *CK 11/28/00* Date Sampled: 11/09/00
Reported: 11/28/00 Date Received: 11/09/00

Date extracted: 11/16/00
Date analyzed: 11/26/00 06:09
Instrument ID: ECD1
Sample Amount: 2.03 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	81.5%
Tetrachlorometaxylene	94.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: Method Blank

Lab Sample ID: CK85MB
LIMS ID: 00-21467
Matrix: Solid

QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Sampled: NA
Data Release Authorized: *CR 11/28/00*
Reported: 11/28/00

Date Received: NA

Date extracted: 11/15/00
Date analyzed: 11/25/00 13:34
Instrument ID: ECD1
Sample Amount: 2.00 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	108%
Tetrachlorometaxylene	116%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Lab Sample ID: CK85

QC Report No: CK85-Boeing Corporate SHEA

LIMS ID: 00-21467

Project: NBF Concrete Joint Material

Matrix: Solid

Data Release Authorized:

Reported: 11/28/00 *CK 11/28/00*

LABORATORY CONTROL SAMPLE SPIKE RECOVERY

Date extracted: 11/16/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
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LABORATORY CONTROL SAMPLE

Aroclor 1242	10100	10000	101%
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Aroclor Surrogate Recoveries

Decachlorobiphenyl	109%
Tetrachlorometaxylene	117%

Values Reported in Total ug/kg as received

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Lab Sample ID: CK85J
LIMS ID: 00-21476
Matrix: Solid

Sample No: NBF-SP44-001109-B1
QC Report No: CK85-Boeing Corporate SHEA
Project: NBF Concrete Joint Material

Date Received: 11/09/00

Data Release Authorized:
Reported: 11/28/00

CK 11/28/00

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY
Date extracted: 11/16/00

CONSTITUENT	SAMPLE VALUE	SPIKE FOUND	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE					
Aroclor 1242	< 990	8900	10000	89.0%	
MATRIX SPIKE DUPLICATE					
Aroclor 1242	< 990	8330	9850	84.5%	5.2%

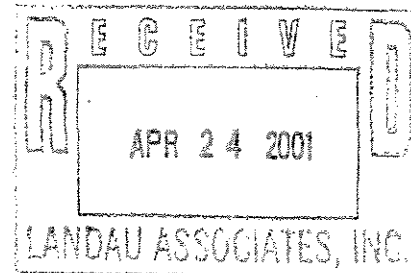
Values Reported in Total ug/kg as received



Analytical Resources, Incorporated
Analytical Chemists and Consultants

April 13, 2001

Joan McGilton
The Boeing Company
Energy and Environmental Affairs
P.O. Box 3707, M/S 7A-XA
Seattle, WA 98124-2207



RE: Project: NBF Joint Compound
ARI Job CX87

Dear Joan,

Please find enclosed the original Chain of Custody (COC) record and analytical results for the above referenced project. Thirteen solid samples were received in good condition on April 2, 2001.

Samples were analyzed for PCB Aroclors referencing EPA SW-846 method 8082. Extracts were cleaned up with sulfuric acid to eliminate chromatographic interferences.

Samples NBF-SP57-010402-G, NBF-SP58-010402-G, NBF-SP59-010402-RES.G, and NBF-SP61-010402-RES.G for the PCB analysis required dilution and re-analysis to quantitate aroclors 1254 and 1260 within the linear range of the GC/ECD instrument.

No other analytical complications were noted. Quality control analysis results are included for your review. A copy of this report will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Stephanie Lucas
Project Manager
(206) 389-6154
steph@arilabs.com

SPL/si
Enclosures

cc: Kris Hendrickson, Landau, Edmonds



Landau Associates

130 2nd Avenue S.
Edmonds, WA 98020
Phone (425) 778-0907
Fax (425) 778-6409

01-4773
3, 0, 0, 4781
C+ 81

Requested Turn Around: Standard (2-wk)

Note:

Please CC hard copy results to

Chain-of-Custody Record

Project <u>NBF Joint Material</u>		Job No. <u>025082.63</u>		Testing Parameters										(1) Joan McGilton The Boeing Company MC 7-A-WH P.O. Box 3709 Seattle, WA 98124 (2) Kris Hendrickson Landau Assoc. 130 2nd Ave. S. Edmonds, WA 98020 Observations/Comments			
Client <u>Joan McGilton - The Boeing Company</u>				(3) Electronic Copy to Anne Halvors @ Landau Assoc. (4) Note: Target Report Limit 1.0mg/kg per Aroclor													
Project Location <u>North Boeing Field - Seattle, Washington</u>																	
Sampler's Name <u>Jennifer Parsons</u>																	
Sample No.	Date	Time	Location	No. of Containers													
NBF-SP49-010402-H	4/2/01	07:53	N. of 3-322	1	X												
NBF-SP50-010402-H	4/2/01	08:20	E. of 3-322	1	X												
NBF-SP51-010402-K	4/2/01	08:45	E. of 3-334	1	X												
NBF-SP52-010402-K	4/2/01	09:15	wind tunnel 3-368	1	X												
NBF-SP53-010402-H	4/2/01	09:55	E. of sweep dump	1	X												
NBF-SP54-010402-A	4/2/01	10:25	Whiting - N 3-330	1	X												
NBF-SP55-010402-A	4/2/01	10:45	N 3-330	1	X												
NBF-SP56-010402-A	4/2/01	11:20	N 3-330	1	X												
NBF-SP57-010402-G	4/2/01	11:40	E. of 3-350	1	X												
NBF-SP58-010402-G	4/2/01	12:00	E. of 3-350	1	X												
NBF-SP59-010402-Res. G	4/2/01	13:15	S. of Stalls A-2	1	X												
NBF-SP60-010402-Res. H	4/2/01	14:30	Stalls A-1, A-2	1	X												
NBF-SP61-010402-Res. G	4/2/01	15:10	Stalls A-1, A-2	1	X												
Special Shipment/Handling or Storage Requirements					Method of Shipment <u>Fed-Ex</u> <u>3-cooler</u> <u>13 total samples + temp ok</u>												
Relinquished by <u>Jennifer A. Parsons</u> Signature <u>Jennifer A. Parsons</u> Printed Name <u>Landau Assoc, Inc</u> Company		Received by <u>McDougal</u> Signature <u>McDougal</u> Printed Name <u>APR</u> Company		Relinquished by		Received by											
Date <u>4/2/01</u> Time <u>16:18</u>		Date <u>4/2/01</u> Time <u>16:18</u>		Date		Date											

SOIL AROCLOR SURROGATE SUMMARY

Matrix: Joint Compound

QC Report No: CX87

Project: NBF Joint Material
025082.63

LIMS ID	Lab ID	Client ID	TCMX #	DCBP #	TOT OUT
01-4775MB	040401MB	Method Blank	103%	87.5%	0
01-4775SB	040401SB	Lab Control	103%	88.8%	0
01-4775	CX87A	NBF-SP49-010402-H	67.5%	97.5%	0
01-4776	CX87B	NBF-SP50-010402-H	55.5%	77.2%	0
01-4777	CX87C	NBF-SP51-010402-K	59.2%	47.5%	0
01-4778	CX87D	NBF-SP52-010402-K	85.0%	69.0%	0
01-4778MS	CX87D	NBF-SP52-010402-K-MS	75.0%	60.5%	0
01-4778MSD	CX87D	NBF-SP52-010402-K-MSD	78.2%	61.8%	0
01-4779	CX87E	NBF-SP53-010402-H	67.8%	62.5%	0
01-4780	CX87F	NBF-SP54-010402-A	62.0%	68.2%	0
01-4781	CX87G	NBF-SP55-010402-A	53.8%	62.5%	0
01-4782	CX87H	NBF-SP56-010402-A	71.8%	63.0%	0
01-4783	CX87I	NBF-SP57-010402-G	D	D	0
01-4784	CX87J	NBF-SP58-010402-G	D	D	0
01-4785	CX87K	NBF-SP59-010402-RES.G	D	D	0
01-4786	CX87L	NBF-SP60-010402-RES.H	50.2%	84.0%	0
01-4787	CX87M	NBF-SP61-010402-RES.G	D	D	0

LCS/MB LIMITS

QC LIMITS

(TCMX) = Tetrachloro-m-xylene

(46-132)

(34-128)

(DCBP) = Decachlorobiphenyl

(61-122)

(39-132)

Column to be used to flag recovery values

* Values outside of required QC limits

D Surrogate Compound diluted out

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP49-010402-H

Lab Sample ID: CX87A
LIMS ID: 01-4775
Matrix: Joint Compound

QC Report No: CX87-Boeing Corporate SHEA
Project: NBF Joint Material
025082.63

Data Release Authorized: *CLP*
Reported: 04/13/01 *4/13/01*

Date Sampled: 04/02/01
Date Received: 04/02/01

Date extracted: 04/04/01
Date analyzed: 04/11/01 08:31
Instrument ID: ECD1
Sample Amount: 2.03 g-as-rec
Final Ext Vol: 20 mL
pH: Comment

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:10
Percent Moisture: ***%

Reported in Total ug/kg as received

<u>CAS Number</u>	<u>Analyte</u>	<u>Value</u>
12674-11-2	Aroclor 1016	9,800 U
53469-21-9	Aroclor 1242	9,800 U
12672-29-6	Aroclor 1248	67,000 Y
11097-69-1	Aroclor 1254	270,000
11096-82-5	Aroclor 1260	83,000 Y
11104-28-2	Aroclor 1221	20,000 U
11141-16-5	Aroclor 1232	9,800 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	97.5%
Tetrachlorometaxylene	67.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP50-010402-H

Lab Sample ID: CX87B QC Report No: CX87-Boeing Corporate SHEA
LIMS ID: 01-4776 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/02/01
Data Release Authorized: c/p Date Received: 04/02/01
Reported: 04/13/01 4/13/01

Date extracted: 04/04/01 GPC Cleanup: No
Date analyzed: 04/11/01 23:39 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	7,100
11097-69-1	Aroclor 1254	18,000
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	77.2%
Tetrachlorometaxylene	55.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED 

Sample No: NBF-SP51-010402-K

Lab Sample ID: CX87C

QC Report No: CX87-Boeing Corporate SHEA

LIMS ID: 01-4777

Project: NBF Joint Material

Matrix: Joint Compound

025082.63

Date Sampled: 04/02/01

Data Release Authorized: *6/1*

Date Received: 04/02/01

Reported: 04/13/01 *4/13/01*

Date extracted: 04/04/01

GPC Cleanup: No

Date analyzed: 04/12/01 00:55

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.00 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	47.5%
Tetrachlorometaxylene	59.2%

Data Qualifiers

J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
U	Indicates compound was analyzed for, but not detected at the given detection limit.
B	Found in associated method blank
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.
NV	Indicates no value reportable - see additional analyses.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP52-010402-K

Lab Sample ID: CX87D
LIMS ID: 01-4778
Matrix: Joint Compound

QC Report No: CX87-Boeing Corporate SHEA
Project: NBF Joint Material
025082.63

Date Released: 04/02/01
Date Received: 04/02/01
Reported: 04/13/01 4/13/01

Date extracted: 04/04/01
Date analyzed: 04/12/01 04:44
Instrument ID: ECD1
Sample Amount: 2.01 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	610 J
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	69.0%
Tetrachlorometaxylene	85.0%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP53-010402-H

Lab Sample ID: CX87E
LIMS ID: 01-4779
Matrix: Joint Compound

QC Report No: CX87-Boeing Corporate SHEA
Project: NBF Joint Material
025082.63

Data Release Authorized: C #
Reported: 04/13/01 4/13/01

Date Sampled: 04/02/01
Date Received: 04/02/01

Date extracted: 04/04/01
Date analyzed: 04/12/01 07:17
Instrument ID: ECD1
Sample Amount: 2.00 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	5,400
11096-82-5	Aroclor 1260	3,600
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	62.5%
Tetrachlorometaxylene	67.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP54-010402-A

Lab Sample ID: CX87F
LIMS ID: 01-4780
Matrix: Joint Compound

QC Report No: CX87-Boeing Corporate SHEA
Project: NBF Joint Material
025082.63

Data Release Authorized: *CLP*
Reported: 04/13/01 *4/13/01*

Date Sampled: 04/02/01
Date Received: 04/02/01

Date extracted: 04/04/01
Date analyzed: 04/12/01 08:33
Instrument ID: ECD1
Sample Amount: 2.01 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	780 J
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	58.2%
Tetrachlorometaxylene	62.0%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP55-010402-A

Lab Sample ID: CX87G QC Report No: CX87-Boeing Corporate SHEA
LIMS ID: 01-4781 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/02/01
Data Release Authorized: CH Date Received: 04/02/01
Reported: 04/13/01 4/13/01

Date extracted: 04/04/01 GPC Cleanup: No
Date analyzed: 04/12/01 12:22 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.03 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	62.5%
Tetrachlorometaxylene	53.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP56-010402-A

Lab Sample ID: CX87H
LIMS ID: 01-4782
Matrix: Joint Compound

QC Report No: CX87-Boeing Corporate SHEA
Project: NBF Joint Material
025082.63

Data Release Authorized: *CH*
Reported: 04/13/01 *4/13/01*

Date Sampled: 04/02/01
Date Received: 04/02/01

Date extracted: 04/04/01
Date analyzed: 04/11/01 15:42
Instrument ID: ECD1
Sample Amount: 2.00 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	14,000
11096-82-5	Aroclor 1260	35,000
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	63.0%
Tetrachlorometaxylene	71.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP57-010402-G

Lab Sample ID: CX87I QC Report No: CX87-Boeing Corporate SHEA
LIMS ID: 01-4783 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/02/01
Data Release Authorized: C/H Date Received: 04/02/01
Reported: 04/13/01 4/13/01

Date extracted: 04/04/01 GPC Cleanup: No
Date analyzed: 04/12/01 20:26 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:100

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	99,000 U
53469-21-9	Aroclor 1242	99,000 U
12672-29-6	Aroclor 1248	99,000 U
11097-69-1	Aroclor 1254	1,200,000
11096-82-5	Aroclor 1260	2,700,000
11104-28-2	Aroclor 1221	200,000 U
11141-16-5	Aroclor 1232	99,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl D
Tetrachlorometaxylene D

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP58-010402-G

Lab Sample ID: CX87J QC Report No: CX87-Boeing Corporate SHEA
LIMS ID: 01-4784 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/02/01
Data Release Authorized: C/H Date Received: 04/02/01
Reported: 04/13/01 4/13/01

Date extracted: 04/04/01 GPC Cleanup: No
Date analyzed: 04/12/01 21:23 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:500

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	500,000 U
53469-21-9	Aroclor 1242	500,000 U
12672-29-6	Aroclor 1248	500,000 U
11097-69-1	Aroclor 1254	19,000,000
11096-82-5	Aroclor 1260	16,000,000
11104-28-2	Aroclor 1221	1,000,000 U
11141-16-5	Aroclor 1232	500,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl D
Tetrachlorometaxylene D

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP59-010402-RES.G

Lab Sample ID: CX87K QC Report No: CX87-Boeing Corporate SHEA
LIMS ID: 01-4785 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/02/01
Data Release Authorized: (u) Date Received: 04/02/01
Reported: 04/13/01 4/13/01

Date extracted: 04/04/01 GPC Cleanup: No
Date analyzed: 04/12/01 22:19 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.04 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:500

Reported in Total ug/kg as received

<u>CAS Number</u>	<u>Analyte</u>	<u>Value</u>
12674-11-2	Aroclor 1016	490,000 U
53469-21-9	Aroclor 1242	490,000 U
12672-29-6	Aroclor 1248	490,000 U
11097-69-1	Aroclor 1254	6,000,000
11096-82-5	Aroclor 1260	14,000,000
11104-28-2	Aroclor 1221	980,000 U
11141-16-5	Aroclor 1232	490,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP60-010402-RES.H

Lab Sample ID: CX87L QC Report No: CX87-Boeing Corporate SHEA
LIMS ID: 01-4786 Project: NEF Joint Material
Matrix: Joint Compound 025082.63
Date Released: 04/02/01
Date Received: 04/02/01
Data Release Authorized: C/H
Reported: 04/13/01 4/13/01

Date extracted: 04/04/01 GPC Cleanup: No
Date analyzed: 04/11/01 21:44 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	23,000
11096-82-5	Aroclor 1260	19,000
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	84.0%
Tetrachlorometaxylene	50.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP61-010402-R3S.G

Lab Sample ID: CX87M QC Report No: CX87-Boeing Corporate SHEA
LIMS ID: 01-4787 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/02/01
Data Release Authorized: 4/13/01 Date Received: 04/02/01
Reported: 04/13/01

Date extracted: 04/04/01 GPC Cleanup: No
Date analyzed: 04/12/01 23:16 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.04 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:500

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	490,000 U
53469-21-9	Aroclor 1242	490,000 U
12672-29-6	Aroclor 1248	490,000 U
11097-69-1	Aroclor 1254	5,900,000
11096-82-5	Aroclor 1260	14,000,000
11104-28-2	Aroclor 1221	980,000 U
11141-16-5	Aroclor 1232	490,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl D
Tetrachlorometaxylene D

Data Qualifiers

J Indicates an estimated value when that result is less than the
calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the
given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: Method Blank

Lab Sample ID: CX87MB QC Report No: CX87-Boeing Corporate SHEA
LIMS ID: 01-4775 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: NA
Data Release Authorized: *4/13/01* Date Received: NA
Reported: 04/13/01

Date extracted: 04/04/01 GPC Cleanup: No
Date analyzed: 04/11/01 07:25 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1
pH: NA Percent Moisture: NA

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	87.5%
Tetrachlorometaxylene	103%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP52-010402-K
MATRIX SPIKE

Lab Sample ID: CX87DMS

QC Report No: CX87-Boeing Corporate SHEA

LIMS ID: 01-4778

Project: NBF Joint Material

Matrix: Joint Compound

025082.63

Date Sampled: 04/02/01

Data Release Authorized: C/H

Date Received: 04/02/01

Reported: 04/13/01

4/13/01

Date extracted: 04/04/01

GPC Cleanup: No

Date analyzed: 04/12/01 05:22

Florisil Cleanup: No

Instrument ID: BCD1

Acid Cleanup: Yes

Sample Amount: 2.03 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	60.5%
Tetrachlorometaxylene	75.0%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP52-010402-K
SPIKE DUPLICATE

Lab Sample ID: CX87DMSD QC Report No: CX87-Boeing Corporate SHEA
LIMS ID: 01-4778 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Released: 04/02/01
Date Received: 04/02/01
Data Release Authorized: *clp*
Reported: 04/13/01 *1/13/01*

Date extracted: 04/04/01 GPC Cleanup: No
Date analyzed: 04/12/01 06:00 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	61.8%
Tetrachlorometaxylene	78.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Lab Sample ID: CX87D
LIMS ID: 01-4778
Matrix: Joint Compound
Data Release Authorized: C/H
Reported: 04/13/01

Sample No: NBF-SP52-010402-K
QC Report No: CX87-Boeing Corporate SHEA
Project: NBF Joint Material
025082.63
Date Received: 04/02/01

4/13/01

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY
Date extracted: 04/04/01

CONSTITUENT	SAMPLE VALUE	SPIKE FOUND	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE					
Aroclor 1242	< 1000	6720	9850	68.2%	
MATRIX SPIKE DUPLICATE					
Aroclor 1242	< 1000	7050	9950	70.9%	3.9%

Values Reported in Total ug/kg as received

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Lab Sample ID: CX87

LIMS ID: 01-4775

Matrix: Joint Compound *6/8*Data Release Authorized: *4/13/01*

Reported: 04/13/01

QC Report No: CX87-Boeing Corporate SHEA

Project: NBF Joint Material

025082.63

LABORATORY CONTROL SAMPLE SPIKE RECOVERY

Date extracted: 04/04/01

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
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LABORATORY CONTROL SAMPLE

Aroclor 1242	9760	10000	97.6%
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Aroclor Surrogate Recoveries

Decachlorobiphenyl	88.8%
Tetrachlorometaxylene	103%

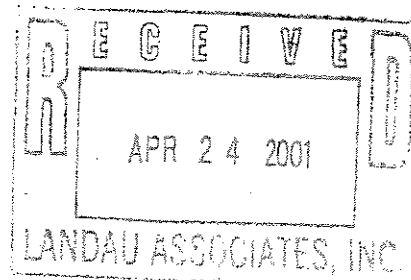
Values Reported in Total ug/kg as received



Analytical Resources, Incorporated
Analytical Chemists and Consultants

April 18, 2001

Joan McGilton
The Boeing Company
Energy and Environmental Affairs
P.O. Box 3707, M/S 7A-XA
Seattle, WA 98124-2207



RE: Project: NBF Joint Compound / ARI Job CX96

Dear Joan,

Please find enclosed the original Chain of Custody (COC) record and analytical results for the above referenced project. Fourteen solid samples were received in good condition on April 3, 2001. Sample NBF-SP71-010403-C2 was placed on hold pending further instruction.

Samples were analyzed for PCB Aroclors referencing EPA SW-846 method 8082. Extracts were cleaned up with sulfuric acid to eliminate chromatographic interferences.

Samples were initially scanned before analysis to determine dilution factors. Samples D, E, F, H, I and J required dilution to quantitate aroclors 1254 and 1260 within the linear range of the GC/ECD instrument. The high dilution factors caused the surrogates for samples D, E, F, H and I to dilute out. As the QC sample surrogate recoveries were within compliance, no corrective action was taken. Quantitation of aroclors 1254 and 1260 in the MS and MSD of sample NBF-SP64-010403-C2 are biased high due to possible interference from the 1242 spike.

No other analytical complications were noted. Quality control analysis results are included for your review. A copy of this report will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Stephanie Lucas
Stephanie Lucas
Project Manager
(206) 389-6154
steph@arilabs.com

SPL/sl
Enclosures

cc: Kris Hendrickson, Landau, Edmonds



Notes:

40

Please send hard copy of results to
JF H. C. H.

Sampler's Name Jennifer Parsons

Testing Parameters

<p>① Joan McGiffon The Boeing Company MC 7A-WW P.O. Box 3707 Seattle, WA 98124</p> <p>② King, Hendrickson Landall Assoc. 130 2nd Ave. S. Edmonds, WA 98020</p>	<p>Electronic experts</p> <p>③ Anne Helmer Olandan Assoc.</p> <p>④ Target Reporting Limit 60 mg/kg per Ardebor.</p>
Observations/Comments	

Method of *Free*
Shipment *by express* *1* *cooker*

Received by

Signature _____

Printed Name _____

Company

Date _____ Time _____

SOIL AROCLOR SURROGATE SUMMARY

Matrix: Joint Compound

QC Report No: CX96

Project: NBF Joint Material

025082.63

LIMS ID	Lab ID	Client ID	TCMX #	DCBP #	TOT OUT
01-4841MB	040601MB	Method Blank	88.0%	82.2%	0
01-4841SB	040601SB	Lab Control	88.0%	82.0%	0
01-4841	CX96A	NBF-SP62-010403-H	55.2%	88.5%	0
01-4842	CX96B	NBF-SP63-010403-H	52.5%	81.2%	0
01-4843	CX96C	NBF-SP64-010403-C2	82.5%	85.2%	0
01-4843MS	CX96C	NBF-SP64-010403-C2-MS	83.8%	86.8%	0
01-4843MSD	CX96C	NBF-SP64-010403-C2-MSD	87.5%	92.5%	0
01-4844	CX96D	NBF-SP65-010403-A	D	D	0
01-4845	CX96E	NBF-SP66-010403-A	D	D	0
01-4846	CX96F	NBF-SP67-010403-Res.G	D	D	0
01-4847	CX96G	NBF-SP68-010403-Res.H	44.0%	61.0%	0
01-4848	CX96H	NBF-SP69-010403-Res.H	D	D	0
01-4849	CX96I	NBF-SP70-010403-Res.G	D	D	0
01-4850	CX96J	NBF-SP72-010403-C2	64.5%	92.0%	0
01-4851	CX96K	NBF-SP73-010403-C2	77.8%	80.5%	0
01-4852	CX96L	NBF-SP74-010403-Res.H	39.5%	63.8%	0
01-4853	CX96M	NBF-SP75-010403-G	74.5%	74.8%	0

LCS/MB LIMITS

QC LIMITS

(TCMX) = Tetrachloro-m-xylene

(46-132)

(34-128)

(DCBP) = Decachlorobiphenyl

(61-122)

(39-132)

Column to be used to flag recovery values

* Values outside of required QC limits

D Surrogate Compound diluted out

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ANALYTICAL
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Sample No: NBF-SF62-010403-H

Lab Sample ID: CX96A QC Report No: CX96-Boeing Corporate SHEA
LIMS ID: 01-4841 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Released Authorized: C/H Date Sampled: 04/03/01
Reported: 04/20/01 Date Received: 04/03/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/13/01 20:22 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: Yes
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	10,000
11096-82-5	Aroclor 1260	7,300
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl 88.5%
Tetrachlorometaxylene 55.2%

Data Qualifiers

J Indicates an estimated value when that result is less than the
calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the
given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

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Sample No: NBF-SP63-010403-H

Lab Sample ID: CX96B QC Report No: CX96-Boeing Corporate SHEA
LIMS ID: 01-4842 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Released: 04/03/01
Date Sampled: 04/03/01
Data Release Authorized: *off* Date Received: 04/03/01
Reported: 04/20/01 *4/20/01*

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/13/01 20:56 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: Yes
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	8,600
11096-82-5	Aroclor 1260	5,100
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	81.2%
Tetrachlorometaxylene	52.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
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Sample No: NEF-SP64-010403-C2

Lab Sample ID: CX96C
LIMS ID: 01-4843
Matrix: Joint Compound

QC Report No: CX96-Boeing Corporate SHEA
Project: NBF Joint Material
025082.63

Data Release Authorized: C/t
Reported: 04/20/01 7/10/01

Date Sampled: 04/03/01
Date Received: 04/03/01

Date extracted: 04/06/01
Date analyzed: 04/17/01 22:47
Instrument ID: BCD1
Sample Amount: 2.01 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: Yes
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,400
11096-82-5	Aroclor 1260	1,300
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	85.2%
Tetrachlorometaxylene	82.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
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Sample No: NBF-SP65-010403-A

Lab Sample ID: CX96D QC Report No: CX96-Boeing Corporate SHEA
LIMS ID: 01-4844 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/03/01
Data Release Authorized: *C/A* Date Received: 04/03/01
Reported: 04/20/01 *7/20/01*

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/17/01 12:42 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: Yes
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:2000

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	2,000,000 U
53469-21-9	Aroclor 1242	2,000,000 U
12672-29-6	Aroclor 1248	2,000,000 U
11097-69-1	Aroclor 1254	52,000,000
11096-82-5	Aroclor 1260	16,000,000
11104-28-2	Aroclor 1221	4,000,000 U
11141-16-5	Aroclor 1232	2,000,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl D
Tetrachlorometaxylene D

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

**ANALYTICAL
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FORM-1 PCB

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Sample No: NBF-EP67-010403-Res.G

Lab Sample ID: CX96F QC Report No: CX96-Boeing Corporate SHEA
LIMS ID: 01-4846 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Released: 04/03/01
Date Sampled: 04/03/01
Data Release Authorized: C/H Date Received: 04/03/01
Reported: 04/20/01 7/12/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/14/01 04:41 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.03 g-as-rec Sulfur Cleanup: Yes
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:500

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	490,000 U
53469-21-9	Aroclor 1242	490,000 U
12672-29-6	Aroclor 1248	490,000 U
11097-69-1	Aroclor 1254	9,700,000
11096-82-5	Aroclor 1260	16,000,000
11104-28-2	Aroclor 1221	980,000 U
11141-16-5	Aroclor 1232	490,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl D
Tetrachlorometaxylene D

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP68-010403-Res.H

Lab Sample ID: CX96G QC Report No: CX96-Boeing Corporate SHEA
LIMS ID: 01-4847 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/03/01
Data Release Authorized: C/H Date Received: 04/03/01
Reported: 04/20/01 4/24/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/14/01 05:14 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: Yes
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	11,000
11096-82-5	Aroclor 1260	9,900
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	61.0%
Tetrachlorometaxylene	44.0%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
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Sample No: NBF-SP69-010403-Res.H

Lab Sample ID: CX96H QC Report No: CX96-Boeing Corporate SHEA
LIMS ID: 01-4848 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/03/01
Data Release Authorized: *CLL* Date Received: 04/03/01
Reported: 04/20/01 *4/24/01*

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/14/01 08:33 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: Yes
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:100

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	100,000 U
53469-21-9	Aroclor 1242	100,000 U
12672-29-6	Aroclor 1248	100,000 U
11097-69-1	Aroclor 1254	1,400,000
11096-82-5	Aroclor 1260	840,000
11104-28-2	Aroclor 1221	200,000 U
11141-16-5	Aroclor 1232	100,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SF70-010403-Res.G

Lab Sample ID: CX96I QC Report No: CX96-Boeing Corporate SHEA
LIMS ID: 01-4849 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/03/01
Data Release Authorized: *CH* Date Received: 04/03/01
Reported: 04/20/01 *4/24/01*

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/14/01 09:39 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: Yes
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:500

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	500,000 U
53469-21-9	Aroclor 1242	500,000 U
12672-29-6	Aroclor 1248	500,000 U
11097-69-1	Aroclor 1254	9,000,000
11096-82-5	Aroclor 1260	7,100,000
11104-28-2	Aroclor 1221	1,000,000 U
11141-16-5	Aroclor 1232	500,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl D
Tetrachlorometaxylene D

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP72-010403-C2

Lab Sample ID: CX96J QC Report No: CX96-Boeing Corporate SHEA
LIMS ID: 01-4850 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/03/01
Data Release Authorized: *CH* Date Received: 04/03/01
Reported: 04/20/01 *4/20/01*

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/14/01 10:45 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.03 g-as-rec Sulfur Cleanup: Yes
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:2

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	2,000 U
53469-21-9	Aroclor 1242	2,000 U
12672-29-6	Aroclor 1248	4,500 Y
11097-69-1	Aroclor 1254	13,000
11096-82-5	Aroclor 1260	5,300 Y
11104-28-2	Aroclor 1221	3,900 U
11141-16-5	Aroclor 1232	2,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	92.0%
Tetrachlorometaxylene	64.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP73-010403-C2

Lab Sample ID: CX96K QC Report No: CX96-Boeing Corporate SHEA
LIMS ID: 01-4851 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/03/01
Data Release Authorized: *CH* Date Received: 04/03/01
Reported: 04/20/01 *4/20/01*

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/14/01 11:19 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.04 g-as-rec Sulfur Cleanup: Yes
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	980 U
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	1,000
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	80.5%
Tetrachlorometaxylene	77.8%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP74-010403-Res.H

Lab Sample ID: CX96L QC Report No: CX96-Boeing Corporate SHEA
LIMS ID: 01-4852 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Sampled: 04/03/01
Data Release Authorized: *CH* Date Received: 04/03/01
Reported: 04/20/01 *7/20/01*

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/14/01 11:52 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: Yes
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,800
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl 63.8%
Tetrachlorometaxylene 39.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP75-010403-G

Lab Sample ID: CX96M QC Report No: CX96-Boeing Corporate SHEA
LIMS ID: 01-4853 Project: NBF Joint Material
Matrix: Joint Compound 025082.63
Date Released: 04/20/01 Date Sampled: 04/03/01
Reported: 04/20/01 Date Received: 04/03/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/14/01 12:25 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: Yes
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	10,000
11096-82-5	Aroclor 1260	4,100
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl 74.8%
Tetrachlorometaxylene 74.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
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Sample No: NBF-SP64-010403-C2
MATRIX SPIKE

Lab Sample ID: CX96CMS
LIMS ID: 01-4843
Matrix: Joint Compound

QC Report No: CX96-Boeing Corporate SHEA
Project: NBF Joint Material
025082.63

Data Release Authorized: C/f
Reported: 04/20/01

Date Sampled: 04/03/01
Date Received: 04/03/01

Date extracted: 04/06/01
Date analyzed: 04/18/01 00:14
Instrument ID: ECD1
Sample Amount: 2.01 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	2,300
11096-82-5	Aroclor 1260	1,400
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	86.8%
Tetrachlorometaxylene	83.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

ANALYTICAL
RESOURCES
INCORPORATED

Sample No: NBF-SP64-010403-C2

SPIKE DUPLICATE

Lab Sample ID: CX96CMSD

QC Report No: CX96-Boeing Corporate SHEA

LIMS ID: 01-4843

Project: NBF Joint Material

Matrix: Joint Compound

025082.63

Date Sampled: 04/03/01

Data Release Authorized: C/H

Date Received: 04/03/01

Reported: 04/20/01

4/20/01

Date extracted: 04/06/01

GPC Cleanup: No

Date analyzed: 04/18/01 01:40

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.04 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	2,400
11096-82-5	Aroclor 1260	1,600
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	92.5%
Tetrachlorometaxylene	87.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Lab Sample ID: CX96C
LIMS ID: 01-4843
Matrix: Joint Compound
Data Release Authorized: C/h
Reported: 04/18/01 4/18/01

Sample No: NBF-SP64-010403-C2
QC Report No: CX96-Boeing Corporate SHEA
Project: NBF Joint Material
025082.63
Date Received: 04/03/01

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

Date extracted: 04/06/01

CONSTITUENT	SAMPLE VALUE	SPIKE FOUND	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE					
Aroclor 1242	< 1000	7870	9950	79.1%	
MATRIX SPIKE DUPLICATE					
Aroclor 1242	< 1000	8050	9800	82.1%	3.7%

Values Reported in Total ug/kg as received

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: Method Blank

Lab Sample ID: CX96MB
LIMS ID: 01-4841
Matrix: Joint Compound

QC Report No: CX96-Boeing Corporate SHEA
Project: NBF Joint Material
025082.63

Date Released: 04/20/01
Data Release Authorized: *4/20/01*
Reported: 04/20/01

Date Sampled: NA
Date Received: NA

Date extracted: 04/06/01
Date analyzed: 04/13/01 19:16
Instrument ID: ECD1
Sample Amount: 2.00 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	82.2%
Tetrachlorometaxylene	88.0%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECDLab Sample ID: CX96
LIMS ID: 01-4841
Matrix: Joint CompoundQC Report No: CX96-Boeing Corporate SHEA
Project: NBF Joint Material
025082.63

Data Release Authorized: C 4

Reported: 04/18/01

4/18/01

LABORATORY CONTROL SAMPLE SPIKE RECOVERY

Date extracted: 04/06/01

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
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LABORATORY CONTROL SAMPLE

Aroclor 1242	8270	10000	82.7%
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Aroclor Surrogate Recoveries

Decachlorobiphenyl	82.0%
Tetrachlorometaxylene	88.0%

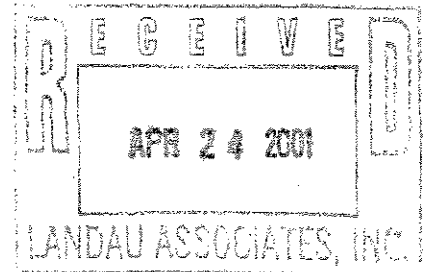
Values Reported in Total ug/kg as received



Analytical Resources, Incorporated
Analytical Chemists and Consultants

April 19, 2001

Joan McGilton
The Boeing Company
Energy and Environmental Affairs
P.O. Box 3707, M/S 7A-XA
Seattle, WA 98124-2207



RE: Project: NBF Joint Compound / ARI Job CY17

Dear Joan,

Please find enclosed the original Chain of Custody (COC) record and analytical results for the above referenced project. Thirteen solid samples were received in good condition on April 4, 2001.

Samples were analyzed for PCB Aroclors referencing EPA SW-846 method 8082. Extracts were cleaned up with sulfuric acid to eliminate chromatographic interferences.

Samples were initially scanned before analysis to determine dilution factors. Samples A, C, D, E, F, G, H, and J required dilution to quantitate aroclors 1254 and 1260 within the linear range of the GC/ECD instrument. The high dilution factors caused the surrogates for samples A, C, D, E, G, and J to dilute out. As the QC sample surrogate recoveries were within compliance, no corrective action was taken for the loss of surrogates. Quantitation of aroclor 1242 in the MS and MSD of sample NBF-SP87-010404-K are not reported due to interference from the 1242 spike.

No other analytical complications were noted. Quality control analysis results are included for your review. A copy of this report will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Stephanie Lucas
Project Manager
(206) 389-6154
steph@arilabs.com
SPL/sl
Enclosures

cc: Kris Hendrickson, Landau, Edmonds



01-4971 to 01-4983
Chain-of-Custody

Chain-of-Custody Record 24

Notes:

Please send hard copy of results
to:

① Joan McGiffon

③ Electronic

The Racing Company
MC 7A-WW
P.O. Box 3707
Seattle, WA 98124

copy to
Annette Larson
@Lander
Assoc.

② Kris Hendrickson
Landau Associates
130 2nd Ave. S.
Edmonds, WA 98020

④ Target
Reporting limit
1.0 mg/kg per
Acidic

Project NBF Joint Material Job No. 025083.63

Client Jean McGilton - The Boeing Company

Project Location North Boeing Field-Seattle, WA

Sampler's Name Jennifer Parsons

Sample No.	Date	Time	Location	Containers
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NBF-SP76-010404-Res.G	4/4/01 07:20	West of B-1	1	X
NBF-SP77-010404-Res.H	4/4/01 08:05	East of 3-390	1	X
NBF-SP78-010404-G	4/4/01 08:30	S. of 3-390	1	X
NBF-SP79-010404-G	4/4/01 08:45	S. of 3-390	1	X
NBF-SP80-010404-Res.G	4/4/01 09:20	West of B-4	1	X
NBF-SP81-010404-Res.H	4/4/01 09:35	Stall B-4	1	X
NBF-SP82-010404-G	4/4/01 09:55	Stall B-5	1	X
NBF-SP83-010404-A	4/4/01 10:20	Stall B-5	1	X
NBF-SP84-010404-Res.H	4/4/01 12:10	East of 3-388	1	X
NBF-SP85-010404-Res.G	4/4/01 13:05	East of C-3	1	X
NBF-SP86-010404-Res.H	4/4/01 13:30	Stall B-11	1	X
NBF-SP87-010404-K	4/4/01 14:00	near 3-701	5	X
NBF-SP88-010404-H	4/4/01 14:25	Parking lot N. of Brown State	1	X

Testing Parameters

PCBs by EPA Method 8082

Special Shipment/Handling
or Storage Requirements

Method of Shipment	Feed	1 cooler
	Hand Delivered	13 total samples
Received by		+ 1 sample blank

Relinquished by

James A. Parsons
Signature

Jennifer A. Parsons
Printed Name

Landaw Assoc., Inc.
Company

Date 4/4/01 Time 16:30

Received by

Signature: Charles H. Jones

Deborah Johnson
Printed Name

ARI
Company

Date 4/4/01 Time 16:08

Relinquished by

Signature _____

Printed Name _____

Company

Date _____ Time _____

Received by

Signature

Printed Name _____

Company

Date _____ Time _____

SOIL AROCLOR SURROGATE SUMMARY

Matrix: Joint Compound

QC Report No: CY17

Project: NBF Joint Material
025083.63

LIMS ID	Lab ID	Client ID	TCMX #	DCEP #	TOT OUT
01-4971MB	040601MB	Method Blank	100%	93.0%	0
01-4971SB	040601SB	Lab Control	102%	93.5%	0
01-4971	CY17A	NBF-SP76-010404-Res.G	D	D	0
01-4972	CY17B	NBF-SP77-010404-Res.H	57.5%	87.5%	0
01-4973	CY17C	NBF-SP78-010404-G	D	D	0
01-4974	CY17D	NBF-SP79-010404-G	D	D	0
01-4975	CY17E	NBF-SP80-010404-Res.G	D	D	0
01-4976	CY17F	NBF-SP81-010404-Res.H	65.0%	124%	0
01-4977	CY17G	NBF-SP82-010404-G	D	D	0
01-4978	CY17H	NBF-SP83-010404-A	77.5%	100%	0
01-4979	CY17I	NBF-SP84-010404-Res.H	72.2%	114%	0
01-4980	CY17J	NBF-SP85-010404-Res.G	D	D	0
01-4981	CY17K	NBF-SP86-010404-Res.H	66.8%	79.0%	0
01-4982	CY17L	NBF-SP87-010404-K	84.5%	83.0%	0
01-4982MS	CY17L	NBF-SP87-010404-K-MS	82.8%	81.0%	0
01-4982MSD	CY17L	NBF-SP87-010404-K-MSD	102%	106%	0
01-4983	CY17M	NBF-SP88-010404-H	90.2%	76.8%	0

LCS/MB LIMITS

QC LIMITS

(TCMX) = Tetrachloro-m-xylene

(46-132)

(34-128)

(DCEP) = Decachlorobiphenyl

(61-122)

(39-132)

Column to be used to flag recovery values

* Values outside of required QC limits

D Surrogate Compound diluted out

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP76-010404-Res.G

Lab Sample ID: CY17A QC Report No: CY17-Boeing Corporate SHEA
LIMS ID: 01-4971 Project: NBF Joint Material
Matrix: Joint Compound 025083.63
Date Released: 04/18/01 Date Sampled: 04/04/01
Reported: 04/18/01 Date Received: 04/04/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/14/01 16:50 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:500

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	500,000 U
53469-21-9	Aroclor 1242	500,000 U
12672-29-6	Aroclor 1248	500,000 U
11097-69-1	Aroclor 1254	10,000,000
11096-82-5	Aroclor 1260	7,200,000
11104-28-2	Aroclor 1221	1,000,000 U
11141-16-5	Aroclor 1232	500,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl D
Tetrachlorometaxylene D

Data Qualifiers

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- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NEF-SF77-010404-Res.H

Lab Sample ID: CY17B
LIMS ID: 01-4972
Matrix: Joint Compound

QC Report No: CY17-Boeing Corporate SHEA
Project: NBF Joint Material
025083.63

Data Release Authorized: C W
Reported: 04/18/01 4/18/01

Date Sampled: 04/04/01
Date Received: 04/04/01

Date extracted: 04/06/01
Date analyzed: 04/14/01 17:23
Instrument ID: ECD1
Sample Amount: 2.02 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	990 U
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	12,000
11096-82-5	Aroclor 1260	3,500
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

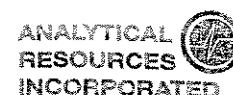
Decachlorobiphenyl	87.5%
Tetrachlorometaxylene	57.5%

Data Qualifiers

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- E Indicates a value above the linear range of the detector.
Dilution Required
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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP73-010404-G

Lab Sample ID: CY17D
LIMS ID: 01-4974
Matrix: Joint Compound

QC Report No: CY17-Boeing Corporate SHEA
Project: NBF Joint Material
025083.63

Data Release Authorized: *LA*
Reported: 04/18/01 *4/18/01*

Date Sampled: 04/04/01
Date Received: 04/04/01

Date extracted: 04/06/01
Date analyzed: 04/17/01 15:08
Instrument ID: ECD1
Sample Amount: 2.04 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:2000

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	2,000,000 U
53469-21-9	Aroclor 1242	2,000,000 U
12672-29-6	Aroclor 1248	2,000,000 U
11097-69-1	Aroclor 1254	45,000,000
11096-82-5	Aroclor 1260	14,000,000
11104-28-2	Aroclor 1221	3,900,000 U
11141-16-5	Aroclor 1232	2,000,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl D
Tetrachlorometaxylene D

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP80-010404-Res.G

Lab Sample ID: CY17E QC Report No: CY17-Boeing Corporate SHEA
LIMS ID: 01-4975 Project: NBF Joint Material
Matrix: Joint Compound 025083.63
Date Sampled: 04/04/01
Data Release Authorized: *CH* Date Received: 04/04/01
Reported: 04/18/01 *4/18/01*

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/17/01 15:41 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.04 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:2000

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	2,000,000 U
53469-21-9	Aroclor 1242	2,000,000 U
12672-29-6	Aroclor 1248	2,000,000 U
11097-69-1	Aroclor 1254	44,000,000
11096-82-5	Aroclor 1260	13,000,000
11104-28-2	Aroclor 1221	3,900,000 U
11141-16-5	Aroclor 1232	2,000,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP81-010404-Res.H

Lab Sample ID: CY17F
LIMS ID: 01-4976
Matrix: Joint Compound

QC Report No: CY17-Boeing Corporate SHEA
Project: NBF Joint Material
025083.63

Data Release Authorized: (A)
Reported: 04/18/01 4/18/01

Date Sampled: 04/04/01
Date Received: 04/04/01

Date extracted: 04/06/01
Date analyzed: 04/15/01 00:02
Instrument ID: ECD1
Sample Amount: 2.02 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:5

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	5,000 U
53469-21-9	Aroclor 1242	5,000 U
12672-29-6	Aroclor 1248	9,500 Y
11097-69-1	Aroclor 1254	36,000
11096-82-5	Aroclor 1260	14,000
11104-28-2	Aroclor 1221	9,900 U
11141-16-5	Aroclor 1232	5,000 U

PCB-Aroclor Surrogate Recovery

Dedachlorobiphenyl	124%
Tetrachlorometaxylene	65.0%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP62-010404-G

Lab Sample ID: CY17G QC Report No: CY17-Boeing Corporate SHEA
LIMS ID: 01-4977 Project: NBF Joint Material
Matrix: Joint Compound 025083.63
Date Released Authorized: 6/11/01 Date Sampled: 04/04/01
Reported: 04/18/01 Date Received: 04/04/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/17/01 16:15 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.05 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:2000

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	2,000,000 U
53469-21-9	Aroclor 1242	2,000,000 U
12672-29-6	Aroclor 1248	2,000,000 U
11097-69-1	Aroclor 1254	45,000,000
11096-82-5	Aroclor 1260	16,000,000
11104-28-2	Aroclor 1221	3,900,000 U
11141-16-5	Aroclor 1232	2,000,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl D
Tetrachlorometaxylene D

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
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ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NEF-SP83-010404-A

Lab Sample ID: CY17H QC Report No: CY17-Boeing Corporate SHEA
LIMS ID: 01-4978 Project: NEF Joint Material
Matrix: Joint Compound 025083.63
Date Sampled: 04/04/01
Data Release Authorized: (A) Date Received: 04/04/01
Reported: 04/18/01 4/18/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/15/01 04:27 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:5

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	5,000 U
53469-21-9	Aroclor 1242	5,000 U
12672-29-6	Aroclor 1248	5,000 U
11097-69-1	Aroclor 1254	27,000
11096-82-5	Aroclor 1260	16,000
11104-28-2	Aroclor 1221	10,000 U
11141-16-5	Aroclor 1232	5,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl 100%
Tetrachlorometaxylene 77.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP84-010404-Res.H

Lab Sample ID: CY171 QC Report No: CY17-Boeing Corporate SHEA
LIMS ID: 01-4979 Project: NBF Joint Material
Matrix: Joint Compound 025083.63
Date Sampled: 04/04/01
Data Release Authorized: (11) Date Received: 04/04/01
Reported: 04/18/01 4/18/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/17/01 17:21 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	2,000 Y
11097-69-1	Aroclor 1254	13,000
11096-82-5	Aroclor 1260	11,000
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl 114%
Tetrachlorometaxylene 72.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP85-010404-Res.G

Lab Sample ID: CY17J
LIMS ID: 01-4980
Matrix: Joint Compound

QC Report No: CY17-Boeing Corporate SHEA
Project: NBF Joint Material
025083.63

Data Release Authorized: (t)
Reported: 04/18/01 4/18/01

Date Sampled: 04/04/01
Date Received: 04/04/01

Date extracted: 04/06/01
Date analyzed: 04/15/01 07:13
Instrument ID: ECD1
Sample Amount: 2.03 g-as-rec
Final Ext Vol: 20 mL

GPC Cleanup: No
Florisil Cleanup: No
Acid Cleanup: Yes
Sulfur Cleanup: No
Conc/Dilution Factor: 1:500

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	490,000 U
53469-21-9	Aroclor 1242	490,000 U
12672-29-6	Aroclor 1248	490,000 U
11097-69-1	Aroclor 1254	1,900,000
11096-82-5	Aroclor 1260	2,300,000
11104-28-2	Aroclor 1221	980,000 U
11141-16-5	Aroclor 1232	490,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl D
Tetrachlorometaxylene D

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP86-010404-Res.H

Lab Sample ID: CY17K QC Report No: CY17-Boeing Corporate SHEA
LIMS ID: 01-4981 Project: NBF Joint Material
Matrix: Joint Compound 025083.63
Date Released: 04/04/01
Date Received: 04/04/01
Data Release Authorized: (1/1/01)
Reported: 04/18/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/17/01 17:55 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	2,200 Y
11097-69-1	Aroclor 1254	4,800
11096-82-5	Aroclor 1260	3,300
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	79.0%
Tetrachlorometaxylene	66.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP87-010404-K

Lab Sample ID: CY17L QC Report No: CY17-Boeing Corporate SHEA
LIMS ID: 01-4982 Project: NBF Joint Material
Matrix: Joint Compound 025083.63
Date Sampled: 04/04/01
Data Release Authorized: (11) Date Received: 04/04/01
Reported: 04/18/01 4/19/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/15/01 14:25 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.01 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	780 J
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	83.0%
Tetrachlorometaxylene	84.5%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP88-010404-H

Lab Sample ID: CY17M QC Report No: CY17-Boeing Corporate SHEA
LIMS ID: 01-4983 Project: NBF Joint Material
Matrix: Joint Compound 025083.63
Date Released: 04/18/01 Date Sampled: 04/04/01
Reported: 04/18/01 Date Received: 04/04/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/17/01 19:11 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	2,400
11096-82-5	Aroclor 1260	2,000
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	76.8%
Tetrachlorometaxylene	90.2%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NBF-SP87-010404-K

MATRIX SPIKE

Lab Sample ID: CY17LMS

QC Report No: CY17-Boeing Corporate SHEA

LIMS ID: 01-4982

Project: NBF Joint Material

Matrix: Joint Compound

025083.63

Date Sampled: 04/04/01

Data Release Authorized: *[Signature]*

Date Received: 04/04/01

Reported: 04/18/01

Date extracted: 04/06/01

GPC Cleanup: No

Date analyzed: 04/15/01 19:25

Florisil Cleanup: No

Instrument ID: ECD1

Acid Cleanup: Yes

Sample Amount: 2.04 g-as-rec

Sulfur Cleanup: No

Final Ext Vol: 20 mL

Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	980 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	980 U
11097-69-1	Aroclor 1254	980 U
11096-82-5	Aroclor 1260	980 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	980 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	81.0%
Tetrachlorometaxylene	82.8%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration,
but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: NEF-SP87-010404-K
SPIKE DUPLICATE

Lab Sample ID: CY17LMSD QC Report No: CY17-Boeing Corporate SHEA
LIMS ID: 01-4982 Project: NBF Joint Material
Matrix: Joint Compound 025083.63
Date Sampled: 04/04/01
Data Release Authorized: 04/18/01 Date Received: 04/04/01
Reported: 04/18/01

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/15/01 19:58 Florisil Cleanup: No
Instrument ID: ECD1 Acid Cleanup: Yes
Sample Amount: 2.02 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	990 U
53469-21-9	Aroclor 1242	---
12672-29-6	Aroclor 1248	990 U
11097-69-1	Aroclor 1254	990 U
11096-82-5	Aroclor 1260	990 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	990 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl 106%
Tetrachlorometaxylene 102%

Data Qualifiers

- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector.
Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- U Indicates compound was analyzed for, but not detected at the given detection limit.
- B Found in associated method blank
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.
- NV Indicates no value reportable - see additional analyses.
- Y Indicates a raised reporting limit due to matrix interferences.
The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Lab Sample ID: CY17L
LIMS ID: 01-4982
Matrix: Joint Compound
Data Release Authorized: (1/18/01)
Reported: 04/18/01

Sample No: NBF-SP87-010404-K
QC Report No: CY17-Boeing Corporate SHEA
Project: NBF Joint Material
025083.63
Date Received: 04/04/01

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY
Date extracted: 04/06/01

CONSTITUENT	SAMPLE VALUE	SPIKE FOUND	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE					
Aroclor 1242	< 1000	6750	9800	68.8%	
MATRIX SPIKE DUPLICATE					
Aroclor 1242	< 1000	9380	9900	94.7%	32%

Values Reported in Total ug/kg as received

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD



Sample No: Method Blank

Lab Sample ID: CY17MB QC Report No: CY17-Boeing Corporate SHEA
LIMS ID: 01-4971 Project: NBF Joint Material
Matrix: Joint Compound 025083.63
Date Sampled: NA
Data Release Authorized: *6/1* Date Received: NA
Reported: 04/18/01 *4/16/01*

Date extracted: 04/06/01 GPC Cleanup: No
Date analyzed: 04/14/01 15:11 Florisil Cleanup: No
Instrument ID: BCD1 Acid Cleanup: Yes
Sample Amount: 2.00 g-as-rec Sulfur Cleanup: No
Final Ext Vol: 20 mL Conc/Dilution Factor: 1:1

Reported in Total ug/kg as received

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1,000 U
53469-21-9	Aroclor 1242	1,000 U
12672-29-6	Aroclor 1248	1,000 U
11097-69-1	Aroclor 1254	1,000 U
11096-82-5	Aroclor 1260	1,000 U
11104-28-2	Aroclor 1221	2,000 U
11141-16-5	Aroclor 1232	1,000 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	93.0%
Tetrachlorometaxylene	100%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector.
Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECDLab Sample ID: CY17
LIMS ID: 01-4971
Matrix: Joint CompoundQC Report No: CY17-Boeing Corporate SHEA
Project: NBF Joint Material
025083.63Data Release Authorized: C/H
Reported: 04/18/01 4/19/01LABORATORY CONTROL SAMPLE SPIKE RECOVERY
Date extracted: 04/06/01

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
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LABORATORY CONTROL SAMPLE

Aroclor 1242	9930	10000	99.3%
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Aroclor Surrogate Recoveries

Decachlorobiphenyl	93.5%
Tetrachlorometaxylene	102%

Values Reported in Total ug/kg as received